The Builder.

VOL. LXXXIX.—No. 3271. OCTOBER 14, 1905.

ILLUSTRATIONS.

Design for a Covered Bridge.....By Mr. Robert Atkinson.
First Premiated Design for Artisans' Dwellings, Paris.....By M. Adolphe A. Rey.
1. View of One of the Pavilions.
2. Plan of Ground Floor and One of the Upper Floors.
Ames House and Welbeck Restaurant.....Professor Beresford Pite, F.R.I.B.A., Architect.

Illustrations in Text.

The Sea Wall and Works for Raising the City of Galveston, U.S.A.:—
Fig. 1 ..... Page 380
Fig. 2 ..... Page 381
Figs. 3 and 4..... Page 382
Design for a Covered Bridge. Plan..... Page 395
First Premiated Design for Artisans' Dwellings, Paris (Fondation Rothschild Competition). By M. Adolphe A. Rey..... Page 395
Ames House and Welbeck Restaurant. Plans Page 396

CONTENTS.

	PAGE
The Sea Wall and Works for Raising the City of Galveston, U.S.A.	379
Notes	383
The Architectural Association	385
The Architectural Association School of Design	388
Magazines and Reviews	391
Competition Designs for Epsom Parish Church	392
Liverpool Architectural Society	392
Municipal Conference on Housing at Sheffield	393
Architectural Societies	394
Fifty Years Ago	395
Illustrations:—	
Design for a Covered Bridge	395
Design for Artisans' Dwellings, Paris	395
Illustrations (*contd.*):—	
Ames House, Mortimer-street, W.	397
The London County Council	397
Applications under the 1894 Building Act	397
Competitions	398
Books Received	398
Correspondence:—	
Scale in Boilers	398
Aylesbury Elementary Schools Competition	399
Hove Public Library Competition	399
London Building Acts Amendment Bill	399
District Surveyors' Fees	399
Tenders for Russian Restaurant, Strand	399
Pictures and Decoration	399
The Student's Column	399
Court of Common Council	400
Westminster City Council	401
Board of Education, South Kensington	401
Obituary	401
General Building News	401
Sanitary and Engineering News	402
Miscellaneous	402
Legal:—	
Alleged Infringement of Ancient Lights	403
Patents	403
Some Recent Sales	404
Meetings	405
Prices Current	405
Tenders	407

The Sea Wall and Works for Raising the City of Galveston, U.S.A.

ONE of the most noteworthy engineering structures in the United States is represented by the concrete sea wall recently completed for the protection of Galveston from a repetition of the disaster of 1900, when the greater part of the city was destroyed by the sea during a violent West Indian hurricane.

Galveston is the chief commercial city in the State of Texas, and is next to New Orleans in point of importance among the seaports of the Southern States. Unfortunately, it is built upon a low sandy spit forming the termination of that remarkable series of alluvial bars which extend along the Gulf of Mexico in almost unbroken line from the mouth of the Rio Grande northwards, enclosing long narrow lagoons something like those to be found behind the Chesil Bank, and on the landward side of the spit forming the site of "Bungalow Town" at Shoreham, in this country.

The city of Galveston is connected with the mainland by three railway viaducts and a highway bridge. It provides excellent accommodation for shipping, and its only drawback, until the building of the sea wall, was the ever-present risk of inundation by the sea. At first the work to which we refer comprised only the project of the Galveston county authorities for the construction of a sea wall, nearly 3·5 miles in length, along the south-eastern shore and round the eastern extremity of Galveston Island, with an apron of granite blocks in front and a wide backing of earth behind. In accordance with this scheme, the sea wall would have extended from the eastern end of the city to the Government reservation on the Gulf of Mexico, but it was hoped that the United States Government would decide to continue the wall along the reservation. This hope has been more than fulfilled, for the national Government have already extended the sea wall for a length of one mile, and propose to continue it to a point beyond the end of the reservation, making the ultimate length of the coast protection works about 6 miles. Moreover, the Government will raise the level of the land behind this extension of the wall.

The original intention of the county authorities was simply to back the wall with an ample width of earth, but subsequently it was decided by a commission that all the low-lying area behind that work should be levelled up, and the State Government of Texas agreed to make a contribution towards the additional expenditure involved. The quarter in question has an area of about 2 square miles, and the average depth of the filling will be between 7 ft. and 8 ft. In some places, however, as much as 20 ft. of material will have to be deposited to bring the ground up to the required level.

Fig. 1 is a plan of Galveston Bay showing the situation of the city with respect to the mainland and the coast line before the alterations effected by recent encroachments. Fig. 2 is a plan giving fuller details of the city, and on which are indicated the positions of the new sea wall, the Government military reservation and jetties, the contractors' temporary canal, and the area to be raised by the deposition of fresh material. This plan also indicates the former coast line and some extensive blocks of buildings that were wiped out by the disastrous flood of 1900.

From the foregoing statement it will be seen that the important works to which attention is invited in this article consist of three parts:—

(1) The Galveston County Sea Wall.
(2) The Government Sea Wall Extension and Re-levelling Works.
(3) The Re-levelling of Galveston City.

We shall now deal briefly with each of these portions of the whole undertaking, commencing with the works recently completed.

(1) *The Galveston County Sea Wall.*—This work commences at the landward end of the Government Jetty (see Fig. 2), running in a straight line for a distance of 1,225 ft., taking a curve with a radius of 573 ft. for 347 ft., then following a straight course, parallel with the transverse streets of the city, for 1,686 ft., and next following straight lines with the lengths of 2,849 ft., 5,302 ft., and 5,659 ft. respectively, these three sections being demarked by two angles, one of 12 deg. 37 min., and the other of 5 deg. 11½ min. To provide for the construction of the wall, the authorities secured a right of

Fig. 1.

way, 150 ft. wide, through land that was formerly covered by blocks of houses and other buildings. Owing to the effect of the flood, the present line of mean high water is within 50 ft. or 100 ft. of the seaward boundary of the right of way, and all the land lying outside the sea wall has become quite valueless. Before the commencement of building operations a series of twenty-nine borings was made, at different points, with a 6 in. diameter tube and a sand pump. By means of these it was found that fine sand existed to a depth of about 26 ft. below mean low water level. Below this comes a stratum of soft blue clay, which is about 15 ft. thick for more than half-way along the line of the wall, and somewhat thinner for the remaining length. Hard red clay underlies the latter stratum, and was entered at depths ranging from 34 ft. to 46 ft. below mean low water level. As shown in Fig. 3, the sea wall is built on a pile foundation, and the outer face has a curved profile. The toe is protected by a granite apron extending seawards for a distance of 27 ft. The back of the wall is vertical, and behind it was to have been an earthen embankment, 100 ft. wide at the base and 70 ft. wide at the top, where a carriageway and footpaths provide a pleasant seaside drive and promenade. This embankment is now to be merged into the general scheme of re-levelling. The thickness of the wall is 16 ft. at the base and 5 ft. at the top, its height being 16 ft. or 17 ft., measured from mean low water level.

The details of construction are shown more clearly in Fig. 4, which is a typical cross-section of the wall. Cylindrical piles of diameter ranging from 12 in. to 16 in. were used for the foundations, the piles being of pine from which the bark had not been removed. The average length was 44 ft., reduced to 40 ft. in places where the red clay was entered. The piles were driven in four rows, 4 ft. apart centre to centre longitudinally, the centres of the piles in each transverse row being separated by spaces of 4 ft., 4 ft. 6 in., and 4 ft. 6 in., commencing at the front. At the back of the front longitudinal row of piles a double line of sheet piling, 24 ft. deep, was driven and secured by 8 in. spikes to horizontal stringers of 4 in. by 12 in. pine planks notched into the back of each round pile. The stringers are held in position by ⅞ in. diameter bolts and nuts, being butted together at the joints, and each end bolted to the circular pile. The first line of sheet piles consists of 6 in. by 12-in. pine baulks, and the second line of 3 in. by 12 in. planks of the same material, driven so as to break joint with the front layer. In sinking piles through the sand the water-jet method was used, and in driving them through the blue and red clay steam pile-drivers were employed, this type of machine having a hammer weighing nearly 3 tons, and driving the piles 2 in. at each blow. The pile-driving machines were placed on rough timber tracks so that they could be moved forward with a minimum amount of labour as the work progressed. In the execution of the work the cylindrical piles were driven in advance of the sheet piling, which was put in position by a following set of plant. After the piles had been driven to refusal, the heads were sawn off to a height of 2 ft. above mean low water level, leaving a clear projection of 1 ft. above the surface of the shore, which was excavated and dressed to the required level in readiness for the building of the sea wall.

Inspection of Fig. 4 will show that the wall really consists of two parts—the base and the wall proper. The base is of rectangular section measuring 16 ft. wide by 3 ft. high, its upper surface having a rebate 4 ft. wide by 6 in. deep at the front, and a groove of the same dimensions at the centre, to afford a key for the upper portion of the concrete work, while not entirely preventing independent movement of the two parts. As shown in the drawing, the projecting heads of the piles are enclosed in the concrete of the base. For aiding the rapid construction of the base the contractors provided a portable mixing platform, running on rails parallel with the longitudinal axis of the wall, and on this was placed a portable concrete mixer fitted with hoisting apparatus and moving on rails laid perpendicular to the axis of the wall. Cement and other materials were conveyed to the site by a temporary railway and wheeled in barrows up inclines to the platform. This installation provided for the deposition of the concrete across the full width of the base, and as the platform could be moved forward and backward without much trouble the concrete of the base was easily laid in successive courses 6 in. thick. The moulds were of very simple construction, and as the sides were backed with the sand of the shore no caulking of the joints was required. About 100 ft. run of the base was completed daily in the manner described, twenty men being engaged in preparing the ground and erecting the moulds, and thirty men in preparing and depositing the concrete. As will be readily understood, the rapidity of construction depended very much upon the tidal range and the levels of the site at different points, but the average quantity of concrete laid amounted to about 140 cubic yds. daily.

The wall proper has a width of 16 ft. and a height of 13 ft. above the base, the profile of the front being a two-centred curve, the first arc struck with a radius of 9·5 ft., and the other with a radius of 25·8 ft. To some extent this wall may be regarded as an example of concrete-steel construction, inasmuch as corrugated steel bars 10 ft. long by 1¼ in. square, spaced 3·5 ft. apart longitudinally, are embedded in the concrete at an angle of 30 deg. with the vertical. These bars are for the purpose of reinforcing the curved front of the wall, and are 15 in. from the surface about the middle of their length. While the base is a continuous structure, the upper portion of the wall was built in sections, each 50 ft. long, connected by tongued and grooved joints, the grooves measuring 13 ft. in height by 1 ft. 6 in. wide by 6 in. deep. The 50-ft. sections were built alternately. That is to say, several sections with a groove at each end were moulded at intervals of 50 ft. apart, each pair being allowed to harden for fully ten days before the formation of

a tongued section in the intermediate space. This mode of construction permitted one-half of the total wall length to shrink before the remainder was added, and thus reduced the space between consecutive sections to a minimum—in fact, leaving no more clearance than that absolutely required for subsequent expansion under the influence of the sun.

The contractors' plant for the upper portion of the wall consisted of two mixing platforms at different levels, a stationary concrete mixer, and two steam derricks, the whole mounted on railway trucks running on four lines of rail at the back of the wall. One of the derricks was used for raising materials from trucks brought alongside by means of the temporary railway, and the other for depositing the mixed concrete in the moulds. On the upper platform a hopper in two compartments was fixed for feeding the concrete mixer on the lower platform, one compartment being filled while the other was discharging its contents into the mixer. The moulds consisted of vertical shuttering at the back of the wall, and curved ribs with lagging on the curved front, the inner surfaces being finished smooth, and the joints carefully caulked with hemp. The latter precautions were the more necessary as a wet mixture of concrete was employed. All the concrete used on the works was mixed rather wet, the specification requiring, however, that no more water should be added than the concrete would bear without quaking while being rammed. The proportions adopted were—one barrel of Portland cement (380 lb.), 9 cubic ft. of sand, and 22·5 cubic ft. of broken stone. The stone used was granite crushed at the quarries whence came the blocks for the protective apron, and it was specified that all stones should be small enough to pass through a 2½-in. diameter ring.

To provide for the passage of water from the backing to the shore, 36-in. arched culverts were formed in the concrete at intervals of 500 ft., and 6-in. vitrified drain-pipes were fixed at intervals of 300 ft. for draining the roadway on the top of the embankment. The apron in front of the wall consists of rough blocks of red granite, about 50 per cent. of them weighing 200 lb. each, and 20 per cent. 1,000 lb. or more, the minimum weight permitted by the specification being 18 lb. The stones were deposited at random on the sandy beach so as to form a protection 27 ft. wide and 3 ft. deep after settlement. By placing the largest blocks at the top and filling the interstices with smaller stones a surface was formed which offers comparatively little resistance to the action of the waves.

Some idea of the magnitude of the sea wall may be formed from the following approximate list of quantities :—

Sand excavation	105,000 cubic yds.
Concrete	192,110 ,, ,,
Granite blocks	50,000 ,, ,,
Cylindrical piles	17,500 ,, ,,
Sheet piling and stringers	3,870,000 ft. super.

The works were executed from the designs of Mr. G. W. Boschke, C.E., of Galveston, the contractors being Messrs. O'Rourke & Co., of Denver, and the contract price about 240,000*l*.

(2) *The Government Sea Wall Extension and Re-levelling Works.*—This section of the operations in hand for the protection of Galveston includes the extension of the new sea wall for a further distance of about 2½ miles, making the total length of the protective works nearly 6 miles. The amount appropriated by the United States Government for the purpose was about 118,000*l*. The extension along the front of the Government military reservation is indicated in Fig. 2. Owing to the fact that the area at the back of the wall will be generally raised to a higher level, no provision was made in the contract for an earthen embankment as in the case of the Galveston city wall. Hence the lower cost per mile of the Government extension. As the constructive features of this section of the wall are identical with those already described, no detailed account is here necessary.

(3) *The Re-levelling of Galveston City.*—In finally deciding upon this project the authorities had in view the desirability of raising the low-lying area of the city so that even during the most severe storms the streets should be free from the dangerous floods experienced in the past, and concurrently of providing for the flow of rain water and sewage without having recourse to a mechanical system of drainage. The district in question, with the area of 2 square miles, lies considerably lower than the business quarter of the city, and suffered very heavily from the storm of 1900. One serious problem presented, after the decision had been made to raise the grade, was to find a suitable source of supply for the filling material, of which fully 12,000,000 cubic yds. were required. To excavate so huge a quantity from the district on the western side of the city would have been very unwise, because that is the only direction in which future extensions can be made, and if the material were to be brought from any considerable distance the cost of transport would have been a heavy item. Again, any attempt to raise the necessary amount of material from the bottom of the Gulf of Mexico within a practicable distance from the site might have involved the serious risk of ultimate interference with the stability of the new sea wall. After considering the question of dredging from the waterways inside Galveston Island, the authorities came to the conclusion that this course could not be recommended in view of the hindrance that would be caused to navigation, and finally they selected as the source of the material required the areas indicated on Fig. 2, between the Government jetties on either side of Bolivar Channel.

The task of raising from the bed of the sea a sufficient quantity of sand to cover 2 square miles of land to a mean depth of more than 2 yds. would be a large undertaking under any circumstances. In the present case its onerous character was increased by the fact that the site of the material was situated at a distance of at least 4 miles from the dumping ground, and consequently that ordinary methods of hydraulic dredging were not applicable. As only two out of 200 contracting firms accepted invitations to tender for the work, we have additional evidence that the difficulties involved were of no mean order. Of the two offers received, one was at the rate of 1s. 2¼d. per cubic yard, and the other was based on the unit price of 9¼d. per cubic yard. The latter, submitted by Messrs. Goedhart & Bates, of New York, was duly accepted, the contract price being 416,150*l*., including the transference of nearly 12 million cubic yds. of sand, and all incidental works, which involve the moving of an additional quantity of some 3 million cubic yds. of material within the city boundaries.

The successful conduct and completion of the re-levelling works are largely assured by the extensive practical experience of the contractors. Mr. P. C. Goedhart, who is also associated with

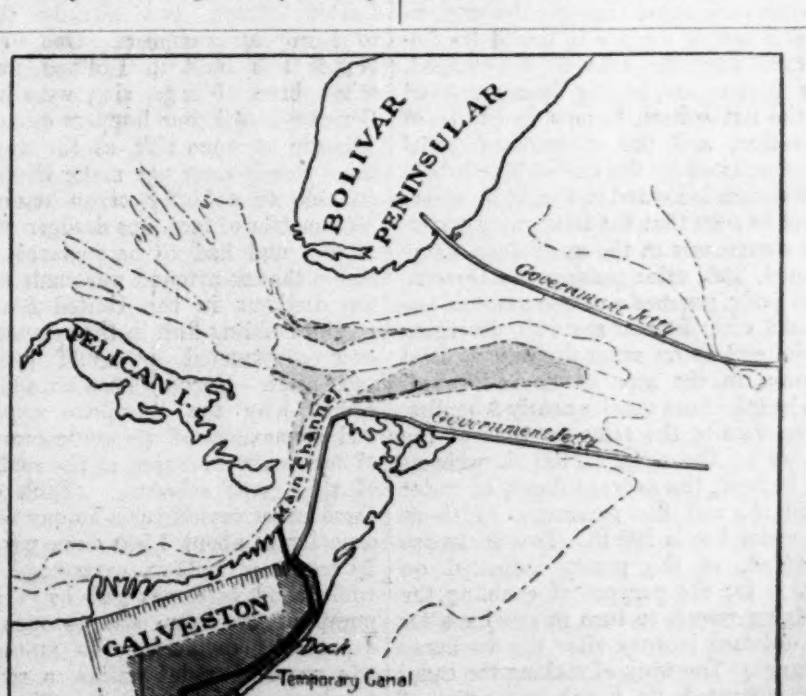


Fig. 2.

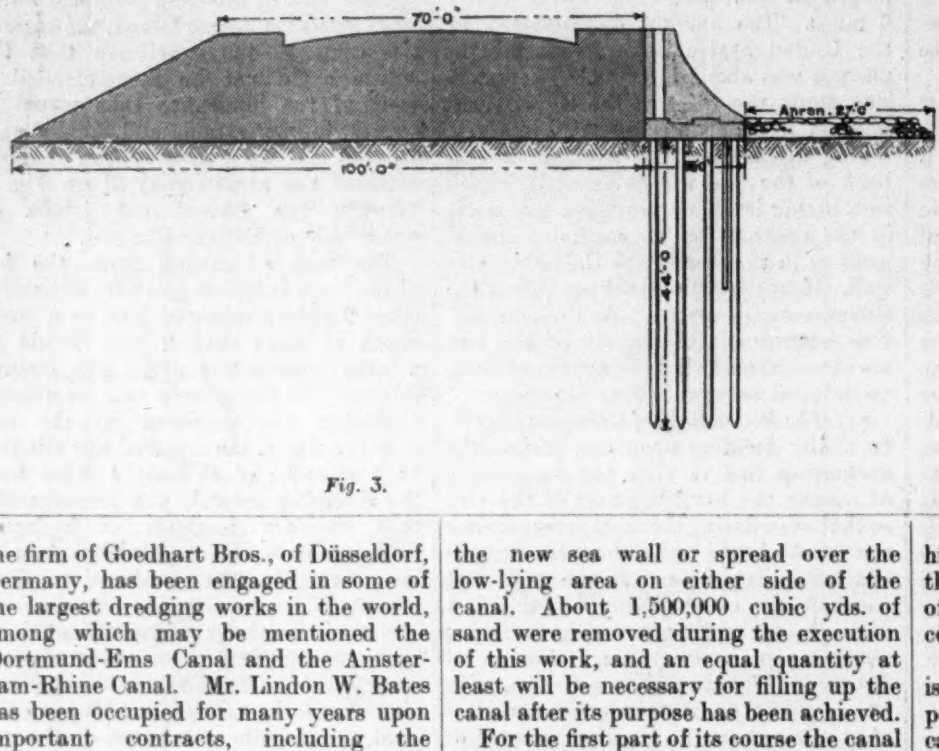


Fig. 3.

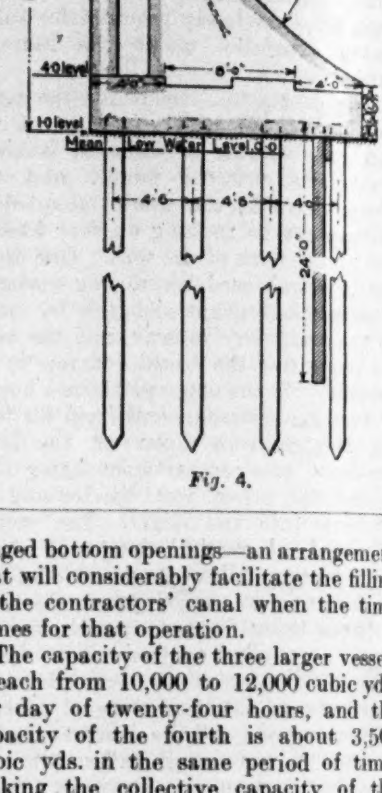


Fig. 4.

the firm of Goedhart Bros., of Düsseldorf, Germany, has been engaged in some of the largest dredging works in the world, among which may be mentioned the Dortmund-Ems Canal and the Amsterdam-Rhine Canal. Mr. Lindon W. Bates has been occupied for many years upon important contracts, including the Chicago Drainage Canal, and is the inventor of a system of hydraulic dredging which has been applied to harbour improvements in the United States, Belgium, Russia, Egypt, Australia, and India. Mr. Bates is also the author of a new scheme for the construction of the Panama Canal, to which reference was made in our issue of June 3.

Described briefly, the plan proposed by the contractors for the execution of the Galveston works was to excavate sand from the Bolivar Channel by means of hydraulic dredgers, and to transport the material in these vessels, by way of a temporary canal through the city, to selected points whence it would be distributed over the area to be covered. This programme, having been accepted by the authorities, is now in course of realisation, and the contractors' canal was completed by the end of March last. Its course is indicated in Fig. 2, by which it will be seen that the temporary waterway commences in the inner deep water channel, and, after passing the Government jetty, pursues a course more or less parallel with the new sea wall, diverging at the end to an approximately central position in the area to be re-levelled. The length of the canal is nearly 3·5 miles, or practically the same as that of the sea wall. The canal is 100 ft. wide at the bottom, the average depth of water is 20 ft., and the maximum width at the water line is 200 ft. Two docks are provided, at the points indicated on Fig. 2, for the purpose of enabling the dredging vessels to turn in readiness for the outward journey after the discharge of cargo. The work of making the canal was entrusted to a sub-contractor at the rate of 3½d. per cubic yard. Hydraulic dredgers were employed for removing the material, which consisted of fine sand, and, except that required for banking the channel, was deposited at the back of the new sea wall or spread over the low-lying area on either side of the canal. About 1,500,000 cubic yds. of sand were removed during the execution of this work, and an equal quantity at least will be necessary for filling up the canal after its purpose has been achieved.

For the first part of its course the canal traverses a closely-built portion of the city, where several large buildings had to be demolished before the excavation could proceed. Beyond the second angle, shown in Fig. 2, its course passes through a residential district, where many of the houses have been washed away by the storm of 1900, and as architects and builders have since evinced very little inclination to tempt Providence by building on this area the canal contractors experienced very few serious obstacles. The four hydraulic dredgers employed for the removal of sand from the Bolivar Channel are of a type quite new to the United States, but already familiar to European engineers. One of these vessels was built in Holland, and the other three, of larger size, were built in Germany. All four hoppers crossed the Atlantic at some risk, as the design of these vessels does not make them at all suitable or safe for ocean navigation. As a matter of fact, one dredger was lost at sea and had to be replaced. It is stated that no attempt was made to build the dredgers in the United States, as no shipbuilding firm in that country had ever constructed or could guarantee such craft. Hence we see an additional reason why the European experience and connexions of the contractors were of such extreme value in the realisation of this great scheme. Each of the three larger vessels has a hopper with the capacity of about 1,500 cubic yds., filled by means of a 33-in. centrifugal pump, while sand is discharged by a second pump of the same size through pipes capable of delivering the material at any required point within a radius of nearly a mile in length. The fourth dredger is of smaller size and has a hopper capable of containing 500 cubic yds., with two 22-in. centrifugal pumps, one for filling and the other for discharging sand. All the dredgers are built with hinged bottom openings—an arrangement that will considerably facilitate the filling of the contractors' canal when the time comes for that operation.

The capacity of the three larger vessels is each from 10,000 to 12,000 cubic yds. per day of twenty-four hours, and the capacity of the fourth is about 3,500 cubic yds. in the same period of time, making the collective capacity of the fleet about 37,000 cubic yds. a day. Taking this as a basis it will be seen that the actual work of excavation and transport could be performed well within a year, providing no hindrances were encountered. But there is a good deal to be done in addition to the mere shifting of material, and it would scarcely be possible to form a reliable estimate as to the actual date of completion at the present moment.

Excavation is now being conducted at the largest of the three areas shown in Fig. 2, and the result will be a material improvement of the main entrance channel to Galveston Harbour. In discharging and distributing the sand over the area to be raised, the work is being conducted in such a way that water contained in the sand will gravitate back to the canal, thus obviating the necessity for a system of drainage pipes. The final gradient of the land will have a slope of 1 in 1,500 from the top of the new sea wall. Fully 2,000 buildings will have to be raised to the new ground level of the city. Many of them will be pulled down and rebuilt, but some of the more important structures will be lifted bodily and provided with new foundations. Sewers, gas and water pipes, electric light and telegraph cables, and other conduits have also to be adjusted to the new level, and the same applies to street and other railway tracks in the area affected. When all is done the city will still be founded on nothing better than a spit of fine sand forming a small part of the extensive barrier built up along the Gulf of Mexico by the contest between alluvium-bearing rivers and the ocean. The splendid harbour provided by nature on the landward side of the island was the only reason for the establishment of an important commercial

centre on so unstable a basis, and we hope that the determined efforts now being made to overcome the disadvantages of the site will have the effect of placing Galveston beyond the reach of any further disaster. So far as it is possible to judge, this will certainly be the case unless in the totally unexpected event of a reversal of those great natural forces which ages ago raised the sandy shores of the island above the surface of the sea.

NOTES.

A Proposed Municipal Concert Hall.

WE observe that in the current number of the *Nineteenth Century* Captain Verney goes at length into the proposal for a Municipal Concert Hall for London (which he has since brought up before the London County Council), meaning of course a Concert Hall largely supported out of public funds, as is the case with opera-houses and concert halls in many cities abroad. He suggests that the demolition of St. James's Hall is a real loss, and leaves a gap to be filled in the provision of another concert hall, and that there is thus a reasonable opportunity for the new departure that he suggests. We are entirely in favour of the idea, but may point out that there are two practical considerations to be kept in mind. 1st, that the hall should not be too large. There is a constant tendency to increase the size of concert halls, the result of which is that they become too large for the proper enjoyment of music. The Albert Hall is far too large; the Queen's Hall is too large for soloists, though it is very good acoustically for its size. St. James's Hall was quite large enough, and any increase on that size is, from a musical point of view, a mistake. 2nd, that the orchestra should be properly planned under special advice. Architects as a rule know nothing about the requirements of an orchestra; the Queen's Hall orchestra is a flagrant instance of bad planning; larger than necessary for a band only, not large enough for a band and chorus, and with the organ disposed in the most unsatisfactory manner possible for its effect. We might also suggest that if such a hall were built, some attempt should be made at a thoughtful and severe scheme of suitable decoration, instead of allowing some firm of decorators to bedizen it with a kind of lacquer of gilding and cupids. Captain Verney's proposal, we regret to say, was defeated at the meeting of the Council, but it does not follow that we have heard the last of it; and if the idea is to be taken up at all, the points we have mentioned cannot be too soon enforced.

The Roads.

A PROPOS of our Note last week on the treatment of the roads, it may be noted that the Cuckfield Rural District Council are about to experiment on the highway with a view to providing dustless and mudless roads. The system to be tried is one which dispenses with all binding material, a granite road being rolled and shaped up, and then topped with granite chippings, some of them tarred. This road, it is estimated, will cost 27*l.* per mile more than those now in use, and as the cost of the roads in the various counties varies between 80*l.* and 150*l.* a mile, it will be seen that ratepayers may expect to be called upon for an additional twenty-five per cent. or so. Iron roads made up with no binding material will prove extremely trying to the feet of horses when going above a slow pace. The societies interested in horses should carefully watch these experiments on the roads—in some instances the material used is too soft, and increases the draught, in others it is far too unyielding and hard, and it should be made certain that the living means of traction will not be made sufferers by the mechanical substitute before any universal scheme is adopted.

Foreign Cement: a Warning.

MANY people who have faith in the efficacy of Acts of Parliament entertain the belief that all foreign goods must be marked with the name of the country whence they emanate. Foreigners are far more serpentine in their wisdom—a fact of which one more proof is given by the information that has recently reached us concerning the tactics of some Belgian cement manufacturers. It is a very general practice in all parts of the world to employ the word "Portland" as an adjective, and to this there can be no possible objection. When admiration for the English language leads foreign cement makers to describe their products as "Portland cement," and to add such qualifications as "Castle Brand," "special quality," "trade mark," and the like, it is really time to make a protest. This is still more necessary in view of the fact that except in cases where the full names or full initials of the English importer are stated the Commissioners of Customs decline to carry out the obvious intention of the Merchandise Marks Act that all foreign products shall bear the name of the country where they have been made. Belgian cement manufacturers know this idiosyncrasy, and several of them are trading upon it with undoubted ability. We all know the loopholes that exist in many Acts of Parliament, and also that the official mind is far too ready to discover and widen such outlets. If the Customs authorities are justified in the present instance the Act should certainly be amended at once. But we cannot understand why they should ever have become conscientious objectors in a way that could only injure British industries and benefit fraudulent foreigners.

The Metropolitan Railway Chimney.

GENERAL satisfaction will be felt by residents in the North-West of London that the Willesden District Council have laid informations relative to the smoke shaft at Neasden, with the result that the responsible persons have been fined 38*l.* and have to pay a like number of guineas for costs. It was urged by the defence that an expert brought from America had so far been unsuccessful in stopping the emission of black smoke from the offending chimney. Further steps are now being taken, and we hope they will assume the form of improved furnace construction, for the existing unsuitability of this detail is most probably the originating cause of the nuisance. To burn bituminous coal under water-tube boilers, as used at Neasden, without an undue production of smoke, specially designed furnaces are absolutely necessary. The most successful type yet introduced is that adopted at Kensington, and described on p. 279 of our present volume.

Ayr "Auld Brig."

WE do not know why the Ayr Town Council should have thought it advisable or in accordance with the fitness of things to submit the reports of various more or less eminent professional civil engineers to the head of a contracting firm in the person of Sir William Arrol. It is quite true that Sir William has had much valuable experience as a constructor and erector of steel bridges, including foundation and masonry work, but surely a great slight was put upon purely professional men by the reference of their reports to a contractor for adjudication. Architects would not like their schemes handed over in a similar way to builders, nor physicians their prescriptions or diagnoses to a dispensing chemist. The award given relative to the "Auld Brig of Ayr" was to the effect that none of the proposals made would remove the difficulty of the reconstruction. This seems to us a somewhat ambiguous and irrelevant expression, and it is very satisfactory to find that, on the motion of Mr. Treasurer Tait, the Council agreed that operations on the bridge should be delayed for a period of four months to allow the public an opportunity of providing the means for restoration, and the experts consulted an opportunity of satisfying the Council that the methods proposed for the restoration and preservation of the structure would be such as to ensure permanency.

The Society for the Protection of Ancient Buildings.

IN reference to the same subject, it is to be regretted that a body with such useful objects in view as the Society for the Protection of Ancient Buildings does not manage its business with more *savoir-faire*. In the *Times* of the 6th inst. was inserted a letter from the Secretary on the subject of the Auld Brig of Ayr. As noted above, the Town Council some time ago obtained the advice of several engineers on the matter of this bridge, and gave full consideration to their reports. The Secretary of the above Society appears to be quite ignorant of these facts, for after stating that his Society instructed an engineer to report on the bridge, and that his report was in favour of retaining it, he goes on to say that as the repair will cost less than a new bridge "it seems impossible that the Town Council can come to any other decision than to retain Burns's bridge." The Town Council practically came to this decision two or three weeks ago, and at their meeting this week ratified it in spite of Sir W. Arrol's adverse opinion; and the suggestion that the Council may still be of opinion that a new bridge should be built is unfair to a municipal body which has shown itself open to outside suggestion and advice. With the best intentions in the world, the Society for

the Protection of Ancient Buildings has, from time to time, by want of tact, minimised the general value of its work in more than one instance.

The Royal Agricultural Society.

THE Report of the special committee of the Royal Agricultural Society which was appointed to consider the present position of this important body was adopted at a meeting of the Council last week. Two only of the recommendations of the committee come within the province of this journal—the proposal to sell Park Royal, and to sell Harewood House, Hanover-square, or to let part of it. The purchase of Park Royal has been unfortunate, and it is clear that agricultural shows near London will not pay. But it does not appear very prudent to be in a hurry to part with the Park Royal Estate. The original vendor has, after a lapse of time, an option of repurchase, and it is obvious that in time the property must become of value as building land. As regards Harewood House, it is probable that offices could be found at less cost in other parts of London, and that a remunerative "deal" might be made in respect of Harewood House, which has an admirable West End position. But whether the sale of Park Royal now or some years hence and the vacating of Harewood House will set the Society on its legs is not a matter for discussion here. What we have to take note of is the intention of the Society to dispose of its present property—a step of some importance and interest to Londoners, and one which is momentous in the history of the Society itself, for it is in a clearly critical state. This move may, if part of other businesslike plans, prove the salvation of the Society, or it may be not more in the result than another movement towards a final though perhaps still distant crash.

Harewood House, Hanover-square.

HAREWOOD House, referred to in the preceding Note, was built at the time of the laying out of the square in 1718-9; the original elevations, one being that in Harewood-place, may be seen in the earlier views of the square published by Sutton Nicholls in 1720 (first state) and 1754, by Overton in 1727, and by others. The brothers Adam designed in or after 1776 the present two fronts, with pilasters, a rounded bay, stables, etc., for the Duke of Roxburghe, and redecorated the interior. After the death, in 1804, of the Duke of Roxburghe, the house was purchased by Edward, first Earl of Harewood. Adam's drawings stated that the new fronts were to be covered with the "Liardet" stucco, the invention of which formed the subject of a leading case—Liardet *v.* Johnson—the brothers Adam being virtually the plaintiffs. The west front, as altered by them, is depicted in an aquatint published in 1800 by T. Malton.

Bishopsteignton Chapel Competition.

THE Trustees for a new Wesleyan chapel at Bishopsteignton advertised, it appears, in the western daily papers inviting architects to compete for a new Wesleyan Chapel and Schools. An architect who wrote for particulars received only the following in reply:—

"Teignmouth, October 5, 1905.

"DEAR SIR,—In reply to yours to hand the Trustees propose to erect a chapel to seat 150 and school for eighty, with two classrooms and the usual water-closets, etc., in the village of Bishopsteignton, and invite suitable designs and plans for same.

"Plans to be sent to [address given] on or before December 1, 1905."

This appears to be all the information it was thought necessary to give; no plan of the site was sent, no cost mentioned, and of course no mention of a professional assessor. If the Trustees were so unacquainted with the necessary method of procedure in such a case, surely they should have taken some expert advice before advertising a competition.

The Leicester Galleries.

AT the Leicester Galleries there is in the large room a very good collection of landscapes by Mr. Weedon, one of the best of our contemporary water-colour artists, who keeps up the best English traditions of pure water-colour style. There is no conventionalism in these works, none of the over-finish which robs water-colour of its best qualities of breadth and aerial effect. The fine character of the skies in many of these works is particularly noticeable, as in "Moorland, North Wales" (9); "Bosham, Sussex" (25); "The Borders of the New Forest" (33); "The White Cottage" (20); and others. Like one or two other water-colour artists of the same school—Collier and Wimperis, for instance—Mr. Weedon has a predilection for subjects with a flat landscape and a large expanse of sky, in the treatment of which there is so much scope for the free and broad washes of colour which represent the most characteristic quality of water-colour painting. "Bringing down Sheep from the Hills, Argyllshire" (47), one of the finest in the collection, shows a remarkable effect in the treatment of the mountain partially veiled in passing clouds; "Mountain and Mist" (57) is another very powerful work of the same character; and in "An Autumn Day on the Moors" (55) the succession of distances, fading off into a mere faint silhouette in the most distant hill, is beautifully managed. Every drawing is worth looking at, but among some others which pleased us especially are "An April Evening" (11); "Cader Idris" (31); and the small dark landscape, grand in effect in spite of its small size, called "A Sussex Common" (34). In the adjoining room is a collection of drawings by Mr. Reginald Barratt, chiefly of Venice, some of them not new to us. Mr. Barratt is an artist who has the faculty of painting architectural subjects so as to convey the full delicacy and minuteness of detail without ever lapsing into hardness or mechanical effect—a very unusual attainment. Possibly the warm glow which suffuses all his Venetian scenes is a little exaggerated; but there is no doubt as to the treatment of the architecture, both as to colour and texture. Nothing could be more true, for instance, than the treatment of the marble and brick in the Palazzo Samudo (1); of "The Bronze Flagstaff" (7) and of the bronze horses in front of St. Mark's (15); on the excellence of this latter drawing we have commented on a previous occasion. The collection includes some subjects of Moorish architecture, the best of which is the interior of the mosque at Cordova (27). A study "On a Venetian Canal" (30) is among the best things, also a small drawing of a most delightful Dutch mill at Vollendam. In the same room is a collection of landscapes by Mr. Alfred Powell. These are good landscapes; in "Moorland, Cwn-y-Glo" (59) the hills are very carefully drawn and modelled; but a comparison between these and Mr. Weedon's drawings illustrates the difference between well executed conventional water-colour and that free and broad handling in which every touch tells.

The Society of 25.

THE Society of 25 English Painters, the formation of which was noted in our columns a few weeks ago, is holding its first exhibition at the Dowdeswell Galleries. It is not very easy to understand on what principle or with what special motive the Society was formed. Most of the members seem to belong to what we may call the camp of the irreconcilables—those who are defiant of the ordinary methods of art; but then how are we to account for the presence of Mr. Melton Fisher and one or two others whose walk is more in the regular paths? There is a good deal of eccentricity in the collection; a good deal of powerful work which has a beauty of its own, and a good deal in which beauty is entirely wanted. Mr. Hornel, who seems to be a follower of that wrong-headed painter, Monticelli, paints a picture of children and flowers which looks like a piece of drugget, or like a kind of inlay in which background and foreground are on the same plane. He seems to have a following; to our eyes it is a diseased form of art. Mr. Hill's "Harlech" (3), showing a hill and castle against a golden evening sky, is a fine composition of a defiant originality; the distance on the right does not separate itself sufficiently from the foreground. Mr. Alfred Withers's brown landscapes we have always admired for their power of composition, in spite of the absence of Nature's colour; "Le Pont du Massacre, Chartres" (9) is a good example, and his painting of "The Mill of Muids" (11), a picture all foreground, is at all events forcible as a realistic representation. Mr. Hughes Stanton's "Evening, Studland, Dorset" (10) is a really fine landscape in a less defiant style; and Mr. Bertram Priestman's "An Old Mill" (40) is also a fine work. Some others which we do not care to particularise are positively ugly; and even in regard to such a free and clever sketch as Mr. Priestman's "A Rough Sea" (54), one may ask—is it a thing to exhibit? It is very good as a painter's memorandum, but it has no claim to be a picture, and there are others of which the same may be said. Mr. Cecil Rea's "A Nocturne" (71) is good colour, and colour is so rare in the collection that one may be thankful for that, but the drawing of the left leg of the figure is surely very unsatisfactory, or the attitude very strained and unnatural. Mr. Dudley Hardy's two little interiors with figures (2 and 78), in a

rather Dutch style, are very good. But if this exhibition is to be taken as a sample of what the 25 have to give us, we can hardly see that it justifies its separate existence. It is in fact a little too much like a second edition of the New English Art Club.

Mr. Jeffcock's Exhibition.

THE exhibition of water-colour drawings by Mr. C. A. C. Jeffcock, at the Modern Gallery in Bond-street, is an interesting one; the small drawings—mostly landscape sketches, are in a free and broad style and give evidence of being direct and honest transcripts from Nature. Some of those on the Norfolk coast—"View of West Runton" (5), which has a very fine sky, and "A Sunny Morning Towards Overstrand" (10), give the character of that part of the coast very truly. Among others of the best are "Cloud Effect, Barmouth Estuary" (8); "Birch Trees" (53); "Cromer from the Shore" (57); "Rolling Clouds" (62); and one (82) which, though not so named, is evidently the old round church tower of Sidestrand, now near the edge of the cliff which has for years been falling away, and will presently carry the old tower down with it. If Mr. Jeffcock is on that part of the coast again, he should try what he can make of Happisburgh with its grandly placed church—a landmark for many miles.

THE ARCHITECTURAL ASSOCIATION.

THE annual general meeting of the Architectural Association was held on Friday at Tufton-street, Westminster, S.W., Mr. E. Guy Dawber, President, in the chair.

The minutes of last meeting having been read and confirmed, and a long list of nominations having been read, the following gentlemen were elected members—*i.e.*, Mr. F. H. Atkinson (London), and Mr. H. S. Sawyer (Winchester).

Mr. H. Tanner, jun., hon. secretary, read the letter of the scrutineers appointed to examine the votes received in reference to the substitution of the word "Council" for "Committee" wherever it occurs in the by-laws; 149 voting papers were received, seven were rejected as invalid, 137 were in favour of the alteration, and five against it.

On the proposal of the President, Mr. J. J. Burnet was elected a member by acclamation. The Chairman remarked that now, with one exception, all the members of the Council of the Royal Institute of British Architects were members of the Association, and that that exception once was a member. He hoped he would soon rejoin.

It was announced that the following reinstatements had taken place, *i.e.*, Messrs. P. L. Forbes, R. G. Elwes, A. C. R. Mackenzie, and W. E. Monro.

Mr. A. Maryon Watson, hon. secretary, announced a visit to Letchworth Garden City on October 14; and a visit to the Victoria and Albert Museum on October 21, by kind permission of Sir Aston Webb, R.A. Members to meet at the clerk of work's office in Cromwell-road at 2 p.m.

Mr. Tanner announced a Camera and Cycling Club meeting on October 17, when a paper will be read by Mr. Ernest Marriage on the "Sculptures of Chartres," at 7.30 p.m.

A meeting of the Discussion Section will be held on October 25. Papers by Messrs. H. F. Waring and C. H. Wainwright on "Casement and Lead Lights," at 7.30 p.m.

Distribution of Prizes, etc.

The President then distributed the prizes, medals, etc., as follows:—

A.A. travelling studentship, value 25*l.*, and silver medal, Mick Horsnell; A.A. medal, value 10*l.* 10s., E. F. Perry; hon. mention, F. Goldsbrough; A.A. essay prize, value 10*l.* 10s., and silver medal, A. E. Bullock; Banister Fletcher Bursary, 1904, F. J. Watson; Hart, medal and cheque; Andrew Oliver prize, value 5*l.* 5s., F. T. Bush; hon. mention, P. K. Kipps; Banister Fletcher Bursary, value 25 guineas, and medal, P. H. Keys; Architectural Union Company's prize, value 10*l.*, H. H. Whittington; A.A. scholarship, value 5*l.* 5s., C. R. Davy.

Studio.

Travelling studentship, value 15*l.* Not awarded. Division I.—Prize for study of old work, volume of Division I.—F. T. Bush. Prize for study of old work, volume of A.A. sketch book; T. Braddock, drawings and sketches of ornament, volume of A.A. sketch book; T. Braddock, perspective, volume of A.A. sketch book; P. K. Kipps, design, volume of A.A. sketch book, and hon. mention in Andrew Oliver prize. Division II.—T. L. Dale, design, volume of A.A. sketch book; V. G. Santo, ornament, volume of A.A. sketch book; B. E. Atkinson, H. D. Ward, commendations.

School of Design.

Elementary Class.—1, A. L. Snow, prize value 3 guineas and bronze medal; 2, R. J. Casement, certificate. Advanced Class.—D. G. Round, prize, value 2*l.* 12s. 6d., bronze medal, and pass for modelling class; Alick Horsnell, prize, value 2*l.* 12s. 6d., bronze medal, and pass for modelling class for advanced class of design (*aeq.*).

Order of Merit. Lectures. Division I.: Greek and Roman Orders.—1, G. H. Yeoman, book prize; 2, A. H. Brownrigg, R. J. Hill, P. May. Elementary Construction.—1, C. R. Davy, book prize; 2, G. H. Yeoman; 3, A. J. Perrin. English Architecture.—1, C. R. Davy, book prize; 2, P. May; 3, L. L. Jeeves. Mediæval and Renaissance.—1, A. H. Brownrigg, book prize; 2, W. H. E. Roberts; 3, L. L. Jeeves. Elementary Physics.—1, C. R. Davy, book prize; 2, J. S. Cable; 3, W. E. Woodin. Geometry.—1, J. B. Healing, book prize; 2, G. H. Yeoman; 3, E. F. Morgan. *Lectures. Division II.:* Materials.—1, T. S. Attlee, book prize; 2, V. G. Santo; 3, W. A. Wilson. Construction.—1, V. G. Santo, book prize; 2, G. L. Alexander; 3, S. H. J. Murch. Drainage and Water Supply.—1, I. T. Sifton, book prize; 2, S. H. J. Murch; 3, T. S. Attlee. Ventilation, Lighting, and Heating.—1, I. T. Sifton, book prize; 2, S. H. J. Murch; 3, V. G. Santo. Professional Practice.—1, S. H. J. Murch, I. T. Sifton, book prize; 2, V. G. Santo, 3, J. R. Hobson. Land Surveying and Levelling.—1, J. P. Schneider, book prize; 2, B. Oliver; 3, J. H. Dahl.

Day School.

First Year.—E. Stanley Hall, book prize for first place in history and construction tests: V. C. Batalha-Reis, volume of A.A. sketch book for first place in freehand drawing tests; S. R. Adams, book prize for best work in studio during the whole session; W. J. Jones, master's prize for essay. Drawings selected for presentation to school portfolio:—V. C. Batalha-Reis, E. Stanley Hall, S. R. Adams. *Second Year.*—W. W. Scott-Moncrieff, travelling studentship, value 15*l.*, for studio work during session 1904-05, holiday work during three vacations, and general progress; T. F. W. Grant, extra studentship, value 5*l.*, for general excellence in studio and holiday work; T. F. W. Grant, end of session test, special prize offered by Mr. Hugh P. G. Maule, design for "A Village Hall" (award made by Mr. Guy Dawber); A. G. Blackford, H. I. Merriman, W. W. Scott-Moncrieff, bracketed second; A. N. Peckham, third; H. I. Merriman, prize for studio and excellence in draughtsmanship; R. C. Coulson, hon. mention. Drawings selected for presentation to school portfolio: W. W. Scott-Moncrieff, T. F. W. Grant, H. I. Merriman, R. C. Coulson.

Evening Continuation School.

A. Welford, book prize; J. K. Ground, book prize; G. St. J. Makin, book prize.

President's Address.

The President then delivered the following address:—

Gentlemen,—A year has passed since I had the honour of addressing you from this chair—a year that has not been without its effect upon our Association, as it marks the first session in our new premises, and puts the seal of success upon our endeavours.

Before proceeding further, I must sincerely thank you for the honour conferred upon me in being chosen as your president for a second year. The office is no light one, and the responsibilities and anxieties are great, yet it is a labour of love, and one that I feel sure no one amongst us who has the welfare of the Architectural Association at heart would wish to shirk. I would also take this opportunity of very cordially thanking my colleagues on the council and the secretary and his staff for their kindly help and consideration, without which it would have been very difficult for me to have carried through the work of the past session.

To the retiring hon. secretary, Mr. Louis Ambler, our thanks are due for the unremitting attention and zeal he has shown in the services of the Association, and also to Mr. Francis Hooper, our hon. treasurer, who retires from the editorship of *A.A. Journal*, a post which he has so ably filled since March, 1903.

I hardly think that the general body of members realise the amount of business and work that has to be done in connexion with the Association. This has largely and inevitably increased with the carrying out of our educational programme, and is being dealt with in a manner most creditable to all concerned.

The New Premises.

A year ago we congratulated ourselves upon entering into these new buildings, and I ventured to predict a brilliant future for the Architectural Association on this important turning point in its career. This is being amply justified, for not only are we well established in our new home, but our membership is still increasing and our various schools and classes are in a sound and healthy condition. All this is particularly pleasing, but we may congratulate ourselves yet further, for the burden of debt that hung around us a year ago in connexion with these undertakings is being rapidly cleared away, so much so that the Association may look forward in a short time to being free from any pecuniary liabilities.

At the commencement of last session we were not in a position to ascertain our exact indebtedness, as the various accounts were not then obtainable, but we now know the cost, including all legal and incidental expenses in connexion with the new premises, has been 10,240*l.* 9s. 10d.

As you know, a generous friend made an offer of 1,000*l.* provided our debt was cleared off by the end of last session, and although we were unable to do that, I had the privilege of announcing at our annual dinner in May last that this conditional offer had been converted into a gift, and it gives me further pleasure to tell you that we have received this 1,000*l.*, and that our generous friend is Mrs. Arthur Cates. It was a kind and graceful act on her part, and I feel sure the Association will join with me in giving our most sincere and hearty thanks to Mrs. Cates for her donation. In addition to this, since last October we have had promised and actually collected no less than 1,961*l.* 19s. 11d., including a grant of 527*l.* 1s. 3d. from our General Fund, reducing our indebtedness at the present moment to the comparatively small amount of 1,019*l.* 12s. 10d.

Gentlemen, this is a record to be proud of, and one that is worthy of the energy and perseverance of the Architectural Association. It speaks most eloquently for the *esprit de corps* that exists in our profession, for it was no light matter for a body such as this, without either official or State recognition, not only to embark on such a scheme, but to attempt to raise so great a sum of money.

All anxiety, therefore, as to the Association continuing its work under a burden of debt may be dismissed from our minds, and to no one, I feel sure, will this be more gratifying than to our old friend and past-president, Mr. W. Howard Seth-Smith, to whose initiative and enthusiasm the scheme was very largely due. It is not my intention during the forthcoming session to make any further appeals, as I am convinced the members of the Architectural Association will themselves see that so small an amount is cleared off.

Deceased Members.

During the past year we have lost by death an unusually large number of members, no less than fifteen, amongst them being two past-presidents, Mr. Thos. Blashill and Mr. John Norton, who, with Mr. C. B. Arding, our oldest member, and Mr. C. Forster Hayward, had all belonged to the Association for upwards of half a century; also Mr. J. K. Colling, who was hon. secretary as far back as 1850. Only a few weeks ago, the profession deplored the loss of Mr. Alfred Waterhouse, who had been a member since 1866. He was one of our most distinguished members, who took a deep interest in our work and progress to the close of his life. We have also lost Mr. John Leaning, our former lecturer on quantity surveying, and Mr. W. Aston Jones, who was one of the assistant masters in the day school, and Mr. Francis W. Bedford, whose untimely end we all regret, as he was an architect of culture and wide views, and one putting his mark upon the work of the day.

Successes of Members.

But, although this is a sad record, on the other hand we have much that is pleasurable to dwell upon. First and foremost, we all delight in the honour that has been so worthily bestowed on our past-president, Sir Aston Webb, R.A., about

whom in this room it would be quite unnecessary for me to speak.

Mr. John Murray, one of our vice-presidents, has been appointed Surveyor to the Crown, so that all who meet him in his official capacity can look forward to sympathetic treatment at his hands. Hardly a week passes but the professional journals announce the success of one or other of our members, and it would not be an exaggeration to say that, with few exceptions, nearly all of those who are doing good and thoughtful work are either members of the Architectural Association or have been in the past. Notable amongst those who have gained distinction during the past year are Messrs. Lanchester & Rickards, Messrs. W. A. Pite & Balfour, Mr. Hare, Mr. Arnold Mitchell, and Messrs. Warwick & Hall, and others too numerous to mention.

The Day School.

The success of the day school, under Mr. Maule and his assistants, has been phenomenal, and the work that is being carried on there is a source of real gratification. The opportunity students have of obtaining a grounding in the rudiments of their work, a direction in the right path of learning, is of incalculable benefit, and it would, indeed, be a great advantage to those whose future lives are cast in the provinces if they also could reap the benefit of these classes and undergo a systematic training before returning to take up their labours in the country. It would enable them not only to enjoy the companionship of their fellow-students, but to gain knowledge that would never be forgotten.

The Board of Architectural Education.

The Board of Architectural Education, as you know, have, within the last few months, formulated a syllabus and report upon architectural training, which doubtless will be adopted by all the recognised institutions throughout the country.

I cannot sufficiently express my opinion that this is by far the most important step towards the advancement of architectural education that has ever been taken, and it must be a source of great satisfaction to all interested in the practice of architecture, and particularly to the founders of the day school.

The Association has readily acquiesced in the recommendations of the Board, whose syllabus, agreeing very nearly with that followed in the day school has been adopted, so that our own system of training now co-ordinates very closely with others, yet maintaining absolutely its individuality as a school, which is the primary object of the Association. Sir Aston Webb and Mr. Basil Champneys have been appointed visitors, a selection that is particularly pleasing, and can but result in the prosperity of the school, as both are in sympathy with our ideas and methods.

The council of the Royal Institute of British Architects, on the recommendation of the Board of Examiners, has resolved that the drawings done by students in the day school during the first and second years may be submitted by candidates for the intermediate examination instead of the usual testimonies of study, and eventually we hope that our students who have completed the four years' course in the day and evening schools may be exempted from passing the intermediate examination on the same lines as at Liverpool and elsewhere.

And here I would wish again to express the thanks of the Association to the Royal Institute of British Architects for their generous annual donation and great interest in our educational work.

Classes, etc., of the Association.

Last session we established an evening continuation school, under the mastership of Mr. T. Frank Green, for the purpose of enabling more of those students who had passed through the two years' course and had entered offices, to carry on their work without intermission. The experiment was thoroughly successful, though, naturally, the numbers were limited. This session, however, we expect to do much better and to make this course, which is so indispensably an adjunct to office training, one of our most important ones. Now, I venture to think that is a good deal to have accomplished in one year, and is gratifying evidence that the educational work of the Association is recognised as a very important factor in the architectural training of the country.

The studio work—the real foundation work of the Association—has also done well under our old friend Mr. Lewis, but several of the other classes have not met with the support they should, notably the modelling class under Mr. Pomeroy. This is to be regretted when it is considered how essential it is for students to study the use of ornament, the drawing and proper disposal of which is most important to architects. Some day I trust the Association may be able to establish a class for drawing and modelling from the life, which is an invaluable aid to learning proportion.

The advanced and elementary classes of design also have not been so well attended, although the quality of the work done was extremely good. The cause may be that either the subjects set are too large and discourage students at the outset, so that they give up altogether, or, perhaps, that so much time has to be given up to the preparation of the institute testimonies of study that all leisure is occupied.

I feel that it would be better that such subjects should be selected as could easily be dealt with by students in the time at their disposal, and that they should be set by the visitors who will eventually criticise the designs. These classes are of such great value in enabling students to benefit by the help and advice of some of the best architects of the day that it seems a pity more do not take advantage of these opportunities, and I hope that the changes indicated, which will be carried into effect this session, will result in a return to the time when these classes were very popular.

It is a matter for regret that only one competitor came forward for the Association travelling studentship, as this makes it dull both for the Association and the student. It is such an admirable prize, and the work that has to be done is evidence of such all-round knowledge and efficiency, that I trust in future it will be better competed for.

The whole teaching of the Association is becoming so widely known that it is already a recognised practice for students from New Zealand, Australia, and the other colonies who come over to this country to become members in order to further their education.

The Old and the New Association.

On the other hand, it has not been possible to do all these things without some few detractors, and there are critics who decry our work and say that the Association has no right to launch out into these large educational schemes. They urge that the old feeling of comradeship is being swamped under this new *régime*, and that we are becoming merely an educational machine, quite different from the original idea of its founders.

Well, gentlemen, to some extent, perhaps, this may be so, and when the Association numbered some few hundreds unquestionably this idea of mutual help and teaching carried on by its own members was admirable and worked well. There can be no doubt that it tended to bind the students of those early days together, and fostered a sense of good fellowship that, in some degree, may be absent to-day. But every other profession is pushing forward on the road of knowledge and giving greater educational facilities for its students. It is not, therefore, a time for architecture, which has so lagged behind in the past, to stand still and see other institutions outrival it in the field of education.

With our membership nearly 2,000, the Association had to face the altered condition of things, and if it meant to hold its own as an architectural training ground the establishment of a systematic and definite curriculum, as now taught in our schools and in the studio, appears only the natural outcome and development of the original classes. But, on the other hand, the danger to guard against in all education is in making the training stereotyped and cut and dried, and, as a consequence, turning out large bodies of students whose ideas and methods are formulated into one set channel and whose after-work must, therefore, suffer from a cramped and too academic training. It cannot be sufficiently understood that the scheme of education established by the Association forms only the basis and foundation upon which the student himself must build up the superstructure of his own career and individuality. It would be a mistake if, in making a student's work plain and easy for him and in giving him all these advantages, people should imagine he has only to go through these courses, and that then his architectural training is complete. Such an idea would be most unfortunate, and entirely at variance with the aims of the Association.

Efforts and Studies of Students.

It is essential that students should realise that it must be upon their own individual efforts and independent studies they must rely in the future, and that it is this very independence of outlook and thought which has given the strength and character to our national architecture, of which we are so rightly proud.

Many of the greatest architects of the past generations, and, indeed, of this, have had no special training or facilities, but have relied upon their own efforts, on self-education, travel, and observation, combined with a keen artistic insight and conception, and I would earnestly impress upon all our members would pass through our classes and schools not to relax for one single moment their exertions and work in after years.

It seems to me that with the establishment of these schools of architecture throughout the country during the past few years a heavy responsibility rests upon the masters who have the training and supervision of those who pass under their hands, and that unless a student has a distinct aptitude and real love for the art of architecture, unless, in fact, it is the be-all and the end-all of his life, that the duty of those in authority should be to discourage his going further with it. How many there are who find after years of hard work and keen disappointment that they have chosen the wrong career.

Architecture—Art and Business of.

Architecture is the noblest of all the arts, just as it is the mother of them all, and unless one is prepared to sacrifice everything in pursuance of that art it is better not to attempt to follow it.

An architect to a great extent must combine two qualities—qualities that are generally considered impossible to find together in one individual—the artistic and sensitive temperament of the artist, with the orderly and common sense methods of the man of business. The latter must be ever present to restrain those flights into the realms of unreality in which the former may be tempted to indulge. Success in most occupations depends largely on efficient organisation and management—that is to say, on a due relation of one part to the rest. In architecture this is especially true. It is an art which is dependent for its expression on the ability of the artist to work and obtain his results through co-operation with his employer. Indeed, architecture is, to a certain extent, more capable of being judged by common-sense methods than any other art. This is doubtless the reason why common-sense people of other professions often think they would make better architects than those they employ! The general public are more apt to look upon architecture as a business than as an art—partly because it is ruled more or less by common-sense principles, and partly because the accepted method of payment is more businesslike than artistic. A time may come when this will be changed for a scale of charges more in accordance with a man's standing and reputation in his profession, but this is neither the time nor place to deal with such a subject, and meanwhile we must accept matters as they are.

We associate directness and the power of quickly grasping a difficult situation and dealing with it with the qualities that go to make a good man of business, and nowhere are these qualities so necessary as in the work of an architect, which, above all things, must be practical.

I would urge all those who are in offices to try and learn all they can about the routine and working of everyday business, not to be content with good draughtsmanship and the preparation of drawings only, but to find out all that they possibly can about specifications and materials, and all

such as appertains to the practical side of their work. Do not regard these as dull matters of routine that may be relegated to others afterwards—the success of your work in after life will depend very largely upon your business knowledge, as well as upon your artistic capabilities and instincts.

The office, after all, is the workshop, and, however much you may learn at classes and lectures, it is in the office that the actual work is carried out and where you will acquire that knowledge which is absolutely essential. It has been said, and I think rightly, that an architect learns more during the progress of his first commission than at any other time in his life, for here he is brought face to face with difficulties and problems that he must solve for himself.

From the commencement of the building almost countless practical problems have to be decided by him, and the most trifling defects can produce mischief. Every day he has demands made upon his judgment, and he must act impartially to the man who has engaged him and the man who is carrying out his instructions. To him also will be entrusted the expenditure and control of large sums of money, so that without practical knowledge and some business training unfortunate results in the way of extras and litigation are bound to follow.

In the management of accounts, in keeping a constant check and supervision of expenses, it is obvious that in his client's interest an architect must be a careful man of business. Not only so, but in the artistic side of his work, in the arrangement and disposal of the plans and elevations of his buildings, the business quality will again make itself felt. It would be an admirable thing if for some months you could get on a building under some capable clerk of works and see the work carried on from day to day. In this way you would have an opportunity of seeing the drawings you have previously been engaged upon being translated into actual brick and stone. This would give you self-reliance and confidence in your judgment, and accustom you to the decision of every-day problems.

Houses for the Working Classes.

Many of us this year have viewed with considerable interest the attempt made at Letchworth to solve the question of the better and cheaper housing of the working classes in rural districts. It does not seem to have been entirely successful, and it is open to question if much real progress has been made towards a solution of the problem.

The main idea and principle governing all good design, both in plan and elevation, is suitability for its purpose, and here too frequently no inquiry seems to have been made by the designers as to the mode of life and the requirements of the people for whom these cottages were primarily intended. Only an intimate experience of the working classes, their needs and habits and casts of mind, can enable any architect to cater for them rationally and well; indeed, without a thorough acquaintance with the requirements of one's clients it is difficult for an architect to produce a satisfactory building. But in other ways the exhibition is instructive and interesting, as showing that, after all, the cheapest and best buildings can be erected in brick and tile and of the natural materials of the country, and also as evidence of an endeavour on the part of architects to deal with the multiplicity of newer and cheaper materials in an artistic and yet sensible manner; and, though many of these do not lend themselves at present to a very sympathetic treatment, yet much has been attained in that direction. In using new materials an architect has to be more circumspect than his predecessors, and he has to discriminate in their use, as in adopting any of them he assumes responsibility for their good qualities.

I feel that all our members would do well to visit Letchworth and study the buildings there, from a practical point of view.

The exhibition, the outcome probably of the strong feeling aroused by the building by-laws in country districts, is most interesting and instructive, and, moreover, is evidence of an awakening interest on the part of the public, however tentative, in the restrictions and conditions under which architects are sometimes obliged to carry out their work.

Buildings in Towns and Cities.

Last year, in this room, I drew attention to the manner in which some of the new buildings in our towns and cities were treated, often entirely from the commercial point of view, and without any regard to their position and the dignity of their surroundings. The subject, though not in any way new, aroused much interest, and has been frequently referred to since, and now that such a large portion of London is being almost rebuilt, the public, through force of circumstances, are obliged to notice what is going on on every side.

People, in general, are inclined to shift the responsibility for this condition of things upon other shoulders, and blame the architects. They say that the fault rests entirely with them. Unfortunately, until the public are induced to appreciate the difference between good and bad architecture, and are urged as citizens to take a pride in the beautifying of their cities, so long will this indiscriminate disfigurement of our streets and thoroughfares continue. Familiarity, as you know, breeds contempt, and it also breeds indifference, and the public have become so accustomed to accepting certain things they see around them as being necessarily ugly that it does not occur to them to consider why they should be so or whether they could not be otherwise.

The long monotonous rows of jerry-built villas at seaside resorts or on the outskirts of our large towns, the pretentious and vulgar houses jarring with and spoiling the old-world charm of our country towns and villages, our railway-stations, workhouses, and factories—all these things they accept as a necessary evil and as part of the so-called progress of the age, just as they do the increase of rates and taxes. And when we consider the matter seriously, what encouragement is ever held out by our press, or art critics, to induce the public at large to take the least interest in this—the noblest and oldest of the arts?

Architecture, the Press, and the Public.

If we turn to our newspapers or magazines, we constantly find criticisms of pictures and paintings, often with interesting details of the work of the artists; but if we read of the opening of any building or the consecration of any church, the architecture, or even the name of the architect, is barely or seldom referred to. In the annual notices of the work at the Royal Academy the reviews in the papers stop short with a perfunctory notice of the sculpture, and never refer to the architectural designs or drawings at all. It has been truly said that the English as a nation "See with their ears," and the view the general public take of art at the present moment is entirely due to what has been written and published about it, and if no reference to or intelligent criticism of the enormous number of new buildings is ever made, how is it possible for the public to know what is good and what is bad?

There is no doubt that exhibitions, both public and private, have done much to popularise the arts of painting and sculpture—indeed, in the minds of many people art is only associated with the contents of our picture galleries and museums—that, in the form of architecture, it should help to elevate and ennoble the lives of the dwellers in our towns and cities never seriously occurs to them.

In our galleries, as you know, the actual finished works are shown—the pictures painted and completed by the hands of the artist. The representations of architectural buildings, however, convey to the public but little idea of the actual buildings themselves, and, as no attention is ever drawn to them, it is not surprising they receive no regard. When it is realised that the street is the architect's picture gallery, and that when he erects a building in a public thoroughfare, country road, or wherever his commission may lie, that his work is on exhibition, not for some few months, but for years to come, then I think the architect will recognise the responsibility of his task, and the public, if their attention is drawn to its good or bad qualities, will soon begin to take an interest in and criticise the work. Not that they do not criticise, and freely too. This, perhaps, to thoughtful men is the most disheartening and unsatisfactory part about it, for people who would be dumb before a picture or piece of sculpture let loose with the assurance of absolute ignorance the invective of their opinion on architecture, quite regardless of whether they are right or wrong.

Indeed, the standard of taste in this country with regard to architecture is such that often a really fine and dignified work passes unnoticed or merely excites ridicule, because it is unusual and not in accordance with the popular taste.

It cannot be urged that the architecture of to-day is beneath sound criticism, or suggested that the large body of men who are engaged in the art are all incompetent and build what is unworthy of admiration—such would be unjust and absurd—for we know that at the present time work is being done in this country, not only in architecture, but in painting and sculpture and the subsidiary arts, that not only holds its own with, but surpasses, that of other nations.

Again, it cannot be that the public are altogether indifferent to architecture, for the veneration and regard in which our cathedrals, churches, old castles, and houses are held is evidence to the contrary—a veneration and admiration created and fostered by the halo of historical sentiment that has been drawn around them by our poets and writers of all ages.

I think we must, therefore, acknowledge that the lack of appreciation of architecture in this country is due not to apathy or indifference, but simply to want of knowledge.

Should Buildings be "Signed"?

On the continent it is the custom for an architect to sign the buildings which he has designed and erected, and I cannot help thinking that if this were done in England it would tend to make architects more careful of what they produced, as they would then have to stand or fall by their works. This would naturally be unnecessary in every instance, but, if an architect felt he had produced a building worthy of his art, I cannot see why it should be considered in any way derogatory to his calling for him to sign his work, any more than in the case of the painter or sculptor.

If this were done generally it would possibly tend to raise the quality of our work, and would in time arouse the interest of the public. But if we wish to produce architecture that is worthy of admiration, it is essential that we should educate and train ourselves, and spare neither time nor energy in the study of our art.

The outlook of architecture in this country at the present time was never brighter, for a large section of the public are becoming more appreciative and discriminating, and the number of brilliant and thoughtful men who are devoting all their time and enthusiasm to their work is day by day growing rapidly larger, and the Architectural Association is one of the foremost bodies in contributing to these ranks.

If we expect the public not to be indifferent to architecture we must produce work that is noble and beautiful, and though at the time it may not be appreciated at its full worth, yet our efforts directed in this spirit will most surely help forward the realisation of that standard which it must be our ambition to reach.

Our chief concern, gentlemen, must be to keep steadily in view the nobility of our craft. It is one which should be incompatible with low ambitions and ideals. There is always the temptation, which we share with other callings, to subordinate our work to inferior ends and commercial considerations. Let us lay it to heart that in a high conception of our art lies the best protection against this danger. There is a wide field open to originality and wise adaptation in architecture to-day, for the possibilities of progress are never closed in any department of life, and, however glorious the architectural heritage bequeathed to us may be, there is always an opening for further advance. The truest reverence for the past rests in the conviction that it may be improved upon.

As I have already pointed out, our work is on continual exhibition before the public eye. How far this open picture gallery is to win for architecture increasing respect and

recognition, how far it is to become more and more an effective means of educating and quickening the public taste, will depend largely on the high view we take of the obligations of our art, and it is to create and sustain this high view that the Architectural Association, over which I have the honour to preside, exists and works.

Mr. Leonard Stokes said he desired to propose a very hearty vote of thanks to the President for his most excellent address. He remembered about thirty of these presidential addresses, and the address they had just listened to was certainly one of the best. Mr. Dawber deserved their hearty appreciation for what he had done for the Association, and they must thank him for again accepting office as President. Of Mr. Dawber's works, they saw them in the picture gallery he had spoken of, *i.e.*, the street—or rather, the country lane, which, in this connexion, was the same thing—and Mr. Dawber not only preached excellently, as on this occasion, but he carried out what he preached. The Association's debt, which was vanishing in a most extraordinary way, was largely due to the efforts of the President—aided by Mr. Driver, their secretary, who had been most indefatigable in the matter—and of many kind donors, particularly Mrs. Arthur Cates. If he might be allowed to say so, the new premises of the Association, in spite of the numerous defects, was not half a bad building, and it was one which, having discounted the defects, they might feel proud to own. It was something for a body like the Association to own such premises, and if some people regretted the past, to some extent, the present surely afforded more opportunity for that good-fellowship which they all wished for! Had the Association ever before had premises of the kind they now possess in which to meet? Had they ever before opportunities for studying fine examples like the casts they had in the museum? And had they ever before so many opportunities for intercourse—the *A.A. Journal*, the *Purple Patch*, and in various other ways? He thought there was as much good-fellowship in the Association as ever there was. The old system had altered a little, but the new one, if properly taken advantage of, was every bit as good. He was glad to hear the President commend the work of the schools, and especially that Mr. Maule's name had been mentioned in the way it was. The work which had been done in the Association schools was simply wonderful, and the way that Mr. Maule got his pupils to progress was remarkable, and it was to the benefit of the profession generally, and particularly the young men themselves, to have such a start as they were now getting under Mr. Maule and his staff. He might say a few words to those students who were present: Drawing was nothing compared with the work an architect had to do. It was all very well for a young man to make pretty drawings and make two lines meet after a little fudging, and so on; but that he must not do in his building, for fudging found him out in a terrible way. Things could not be dodged about on buildings as they were on paper, and one must think of one's design as a real thing, and not as a piece of cleverness on paper. As to the Board of Education, he had the honour to be a member, and the work they had had to get through was rather ponderous, but they had come to some sort of a conclusion, and he thought it could not but be to the benefit of the profession generally if some common course of training was recognised as the right one for all young men to go through. There had been so many mistakes made in the past, and young men found it all out too late; they should have done one thing when they did quite another, so that if we could get a recognised scheme, and let all young men work to it, it could not but be a good thing, and that was what the Board of Education are trying to do. They had got as far as to realise that the work of the Association was as good as it could be, and if the Association kept up its past records, and took an occasional hint from the Board of Education, it would continue to benefit, and the whole profession as well. The President had pointed out that two qualities were required in an architect—perhaps Mr. Dawber was not overgenerous in saying that there were only two; it seemed to him that an architect had to possess an extraordinary number of qualities if he was to succeed—which qualities were the artistic and the business. He (the speaker) would like to point out to those who thought that the business part of an architect's career was to be shirked that it was rather an extraordinary thing that most of the good and successful men—all the good architects, in fact—were extraordinary good business men as well as good artists; they grasped the fact that to put up a good building and be a good architect it was necessary that business matters and practical projects which affected the architect should not be shirked.

Mr. John Murray said he had very great pleasure in seconding the vote of thanks. The President's work and energy in the cause of the Association were vast and untiring, and it probably was not realised by most of the members how great was the work which the President did for them. The happy position in which the Association now found itself was largely due to Mr. Dawber's efforts. The address was so true that it was really beyond criticism, and it was full of hope and encouragement. It was to be hoped that the young men of the Association would embrace the educational opportunities which were now afforded, and which, he was sorry to say, had only recently been available. The facilities for study now offered by the Association would, he was quite sure, produce in the future better architects and architecture. He might say to the students who had not received prizes that evening that they should not be discouraged, for it was not always the prize-winners who had been the most successful architects in the past. Students should cultivate the two essential qualities mentioned by the President, *i.e.*, the qualities which produced the artist and the man of common-sense business capacity, and they should remember that there was always room at the top. The aim of the architect should be to produce work which, as the President said, was noble and beautiful; such work could not satisfactorily be done without considerable study, and facilities for this were presented by the educational scheme of the Association.

Mr. Louis Ambler said he had great pleasure in supporting the vote of thanks to the President for his excellent and eloquent address. It was seldom that one heard an address which contained so much of interest and helpfulness in the way of hints and suggestions. Mr. Dawber worked energetically and whole-heartedly for the Association, and it might not be generally known, but it was a fact, that Mr. Dawber himself wrote or signed many hundreds of letters appealing for contributions to the building fund of the Association, and the present position was largely due to his personal appeals. It was a pleasure, too, to work with a president who was so genial and tactful, and this was especially so in committee. The Association had good reasons for congratulating itself on having so nearly removed the debt incurred in procuring their excellent premises, but they should remember that that was not the end they should have in view. There were a great many other wants besides those they had realised. There was a great deal to do in the way of fully equipping the premises, and in rehanging and repainting or cleaning the casts, and in the provision of things they might hope to have in the future, such as workshops and life classes, modelling-rooms, etc., so that the clearing off of the debt was not the only thing they had to think of.

Mr. Edwin T. Hall, who spoke in support of the vote of thanks, referred to the indefatigable way in which the President worked for any cause he took up. As to the President's recommendation to students that they should exercise individuality in their work, he knew that the President did not mean that they should be eccentric and go against all the canons of construction and design, but that they should not set themselves in the rut and blindly follow the traditions of a school, but that they should apply the knowledge gained in such a way as to give expression to their own mind, and let it be seen in the work they produced. He ventured to suggest that young men should not shirk taking upon themselves responsibilities. He believed that one of the best means of training a young man was by giving him responsibility, and although a student, like everyone else, was liable to make mistakes, he should not shirk responsibility for fear of making them. It was the exercise of responsibility that made a young architect an efficient architect in the years to come. He was glad to note the President's remarks about the best architects being men of business as well as artists. He (the speaker) could remember the time when, if an architect professed to be a man of business he was rather sneered at—he was "not on the art side," he was told; but that was all in the past. An architect might be the best artist in the world, but if he did not possess business instincts he would not succeed, for no man of sense would entrust him with work, or with large sums of money unless he had business capacity. As to drawing, men should not look upon it as the be-all and end-all of an architect's work. It was a mistake also to make a pretty elevation, and then to make the plan fit the elevation. That was the wrong way. Every plan should provide what was necessary, and while an architect designed his building and made the plan and the arrangements convenient, the external design would grow *pari passu*, and they would get the building perfect in all parts. By expressing construction and the uses of their buildings they would get a satisfactory result. He should like to congratulate the Association on having so fine a set of buildings in which to carry on its work. The chief thing about the Association was the spirit in the work which was carried on, and the system of education which had been inaugurated within those walls. No words would be too extravagant to express what was being done by the excellent staff of teachers, and he had been delighted to see the progress made. Mr. Maule had the quality of enthusing his students, and of bringing them on while making them grow up in the spirit of freedom and individuality.

Mr. Stokes then put the vote of thanks to the meeting, and it was heartily agreed to, and Mr. Dawber briefly replied.

The Chairman announced that the next meeting would be held on the 20th inst., when Mr. Andrew Oliver will read a paper on "The Ecclesiastical Architecture of the City of London," illustrated by lantern views.

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION SCHOOL OF DESIGN.

THE Preliminary Meeting of the Architectural Association School of Design was held on Tuesday at 18, Tufton-street, Westminster, S.W., Mr. E. Guy Dawber, President of the Association, in the chair, when addresses were delivered by Messrs. Arthur Keen and A. T. Bolton.

Mr. Keen said that advice to students had been given so often by such well-qualified professors that he had little hope of throwing new light on the subject. The ground had been cleared and paths had been indicated, but progress was still slow, and he took it that a student's main difficulty was to grasp his subject as if it were a real thing instead of one that begins and ends with a sheet of paper. The architect in practice had the stimulus that was given to him by considerations of cost and construction, the limitations of approach and aspect, adjacent buildings and the like, and by his responsibility for producing a building that should answer its purpose well and completely and satisfy his client as well as himself. These things, although they might hinder him to some extent, helped him at the same time by making the problem real and tangible, and confining his action within certain boundaries. Probably his chief drawback was that he was working mainly by means of paper and a drawing-board in an office instead of, as in old days, mainly by means of building materials and workmen in the open air. Those who designed the old buildings were closely in touch with them, and the value of this personal contact was seen in all their work. The actual ground and materials before them were full of suggestion and guidance, and we should derive the same help now if we were using the actual stone and timbers instead of

making drawings of them. A well-known architect told him once that the best thing he ever designed was a garden terrace made up of materials that his client had got together and wanted him to use without much addition. There were quantities of old balusters, bought at a sale, a truck-load of rubble which had gone astray on the railway, some steps, some bricks, and other things. They had to be dealt with at the site, and the very difficulties they imposed gave interest to the problem, and suggested the happiest solution of it.

He had often noticed the happy effect on a building of an important piece of heraldic work having to be incorporated in the design, as, for instance, in the Cambridge colleges that they saw recently. It was not only a spot of beautiful ornament in itself, but it affected the general design by the setting it required, or perhaps by suggesting other points on which decoration could be concentrated. Something definite to start from was as useful to a designer as a good text was to a preacher; it imposed a line of thought or treatment, gave scale, suggested composition, and otherwise removed uncertainty. Let them try it for themselves by designing a pavement in which two main lines of approach govern the scheme, or a ceiling in which the main divisions of the pattern were marked off by certain recesses or windows; they would be surprised to find how their invention was stimulated by the necessity to comply with certain unequal dimensions or some apparently unpromising angles. Certain forms and sequences were soon found to be inevitable, and where they arose in this way they generally proved interesting and effective.

Accordingly, he suggested in connexion with the subjects actually set in the School of Design that it would help a student if he could find an actual place to receive his design. For instance, in Mr. Hare's subject of an entrance to a park, it might be well to take the Albert-gate entrance to Hyde Park and make the design as if for a re-arrangement of this entrance. For the book-seller's shop front a definite house in Bond-street might be settled on, and a new front designed to suit it—perhaps with a side entrance to a print gallery upstairs and a bit of forecourt in front marked off with a railing at both ends. The actual location and existing conditions could not fail to be suggestive and helpful. As an instance of this he would mention a very successful piece of treatment that he saw lately in an addition to an old house in Kent. It was a simple Georgian house, with a big bay on one side and a doorway on the other, but nothing about it of much interest. The architect had taken the doorway as a centre and had doubled the front, thereby making a long, low symmetrical elevation of good proportion and considerable merit by the mere repetition of what had not in itself much beauty. Had the house been a new one the possibilities would have been more numerous, but the design would probably not have been so good. The limitations of the case had themselves suggested the best solution of the matter. Very much might be said in extension of this point, but a little experience would convince them that in this, as in most things, qualified liberty was better than unlimited freedom. Another thing he would like to impress on them was the necessity for working up their subject and getting technical information about it before going too far with drawings. For instance, to take a familiar example, the treatment of a stable must depend entirely on the class of horses it was for. For cart-horses it would be a huge open room, perhaps on an upper floor, and with a great yard under it for carts and vans. For race-horses it would consist of ranges of separate large loose boxes round three sides of an open yard. A stable for carriage horses would have all kinds of accessories that would be useless in one for hunters. A shop that was convenient for a West-end boot-maker was useless to an East-end one, and so forth. It was essential to know all about the particular uses a thing was to be put to before they began to design it. A clock-maker showed him recently a large clock-case designed and made by a certain guild of craftsmen; it was adorned with green paint and gilded hearts, and was striking enough in appearance, but it was not deep enough to contain a clock, and there was no way of winding the clock without taking the case to pieces. Five minutes' conversation with the village clock-maker would have given the designer the information he so badly needed. And even in things that were designed mainly for appearance rather than utility—such as memorial tablets, for instance—it was wonderful to see how much one's eyes were opened by the close study of a few good examples and a chat with a man who had worked on such things before. If they had, for instance, a library to plan, they should not be satisfied with looking at drawings or reading books on the subject, but go themselves to two or three libraries in the evening and see them in full work—talk to the librarian and hear what he had to say about the loss of time or the expense of management consequent on defects in the planning, ascertain his views about windows and tables, the storage of books, and such things. They nearly always found that an expert approached a matter from a very unexpected standpoint, and, as the points he raised were probably vital ones, it did not do to neglect them. They asked a marble mason whether some columns they were designing would be strong enough for the weight they were to carry, and he would very likely say "Yes; but there is no marble of that size to be had without special quarrying, and you may have to wait a year before you get it!" Those who live in London had the advantage of being able to see and study every kind of building without going far. They could visit a country mansion at Kensington, or a bell foundry in Whitechapel. If they wanted a Gothic church, the most beautiful one in Europe was open to them; if they were designing a steeple, they might see half a dozen fine ones in half an hour's walk. They had examples of bridges of every kind—granite, stone, timber, suspended, hinged, steel, or iron. They might study park lodges at Regent's Park or Kew, entrance-gates at Gray's Inn or Hampstead, country churches in the old suburbs, terraces of Georgian houses at Edmonton or Clapham. They had a Tudor palace at Hampton Court and an ancient hospital at the Charterhouse, and, in addition to this, the museums and libraries were full of books, drawings, and examples of the best kinds in existence, so that there was no excuse for a man who did not acquire some information on the subject he undertook to deal with.

Might he say something on the question of style in connexion with their designs? He was old-fashioned enough to think that students ought to adhere more closely than they generally do now to the recognised styles. From one point of view, the styles might be taken broadly to typify the various attributes of good architecture. Norman work might stand for solemnity and mystery, Early English for vital force, decorated work for intrinsic beauty, and so forth, and he thought the best way of studying the styles was to work in them. A man with ability would emancipate himself in due time and express himself in his own way, and, on the other hand, the work of a bad designer would be less painful to us if he used recognised forms than if he invented new and terrible ones for himself. The newly-invented vulgarities of to-day offend one far more than the dull, common-place work of forty years ago. Some authorities tell us to go back to the simplicity of mere good workmanlike building, as opposed to so-called architectural design, and perhaps to work in some actual trade ourselves in the hope that we might thereby develop style, if not *a* style for ourselves; but, looking at the complex conditions of modern life, it seemed to him an impossible course. An individual here and there might do it for himself, but it did not seem to be a method by which the architectural system of the age would be regenerated, nor did it seem to him to promise to meet the needs of the case. The particular characteristics of Bow steeple or the west front of St. Paul's were not those which came from working at a carpenter's bench or a blacksmith's anvil, and Sir John Soane's wonderful interiors were not produced by the study of carving wood or modelling plaster. By all means practise some handicraft for themselves if they wished to; it would give them pleasure, it would teach them a great deal about the qualities on which beauty of detail depended, it would show them how to use material and workmanship economically, and not to waste their resources—but they must not expect too much from it. The methods and qualities of ancient building were gone with the social life of the past, and could no more be recovered by putting architectural students to forging iron-work or making pipe-heads than the rural life of a century ago could be restored by people of education and refinement going to live in labourers' cottages and cooking their own porridge in earthenware pipkins over a wood fire! The student had still got to study the architecture of the past concurrently with the building methods of the present, and to learn to carry his ideas into effect by means of good working drawings and well-written specifications. He must learn by analysis and comparison what gave works of art their peculiar charm, and how it was produced. He must find out how the materials of a building and the uses it was to be put to had influenced its design. He must learn the proper uses and limitations of ornament and get into sympathy with the spirit of those who applied it in the building he studied, and then he would know how to use modern materials in buildings for present-day purposes, and how to adorn them with such enrichment as their nature allowed.

In this connexion he would point out the great desirability of taking measurements of the details of old buildings and getting into the habit of remembering them and contrasting them with current examples. They would find noticeable points of difference between old and modern designs in the heights of doorways and arcades, sizes of window openings and mullions, projections of bays and chimneys, and all such things. They might not be able to adhere to the old types in their own buildings, but the knowledge of them was useful to possess. The great thickness of old walls and piers was generally due to the very poor material they were built of, but it had an important bearing on the treatment and spacing of windows. Old flues were larger than modern ones, because they had to be swept by boys climbing up them; they could not make them so large to-day, but it was useful to see what a look of size and stability the chimneys had in consequence of these big flues. Actual size was a very important consideration in architectural design. Those fine brick and stone gateway piers on the west side of Lincoln's Inn-fields were 3 ft. 6 in. square and 23 ft. high. They might have been half the size without much difference in design, but they would not then have had the particular air of distinction which they possess, and which confers such dignity on the house they belong to. Facts like these, if properly understood in their relation to design, were an important part of their architectural outfit, and often more valuable than facility in design or power of invention.

As to the treatment of the various features of their designs, they must study to give them due importance, and not to introduce too many of them. Many a good design had been spoilt by too much being attempted and by emphasis and concentration being thereby lost—as, for instance, in much of the modern work at Cambridge. It was seen, of course, in close comparison with old work of a similar class, and, beautiful as much of it was, it was felt to lack the peculiar effectiveness and value which were the outcome of restraint on the one hand and concentration on the other, shown so well in the old examples. He had a photograph of the Maison Espagnol at Antwerp, as fine a street front as they need wish to see—the seven stories were very nearly alike in design, but what value the main lines of the front gain by the simplicity of its treatment, and how effective the design of the gable was by contrast with the regular divisions of the main wall below! And they could note further that this could be achieved without any loss of richness in the lower part.

It was most important, too, to let each feature appear as an essential and integral part of the building, so as to avoid the detached and uncomfortable look that was so common. There were few modern architects who could give an exterior chimney the peculiar effect that an old one had of

seeming to have grown up with the building as part and parcel of it rather than as an accessory that had been separately considered. An old Tudor bay gave the impression of having been carried up course by course with the rest of the structure; a modern one too often looked to have been put on afterwards—which was indeed often the case. The things which we might consider the distinctive features of a building were in great danger of being over-designed, and thereby detaching themselves and losing the particular value that should belong to them.

Finally, all manner of rules and principles might be laid down and carefully followed; but, unless that indescribable something which might be called artistic feeling or taste was present, the result might be a thing which could not fairly be criticised, but it would not be a work of art. In former times, when people did not live among vulgar surroundings, good taste was natural and spontaneous, but nowadays, except in rare cases, it had to be developed, and the best training they could have, in his judgment, was the constant study of old examples. He suggested to them not to study them in a desultory fashion, but to take up from time to time the pursuit of particular lines, because by that means they got easily into a close and accurate habit of observation and comparison. Say, for instance, that they took up the subject of gate-piers or chimneys for a time; they found examples of them wherever they went, and, as they were interested in them, they took particular notice, instead of satisfying themselves with a casual glance. They got into the habit of arranging them in classes and noticing the features in them that were most capable of artistic treatment, and perhaps incidentally they might make a collection of drawings that would form the material later on for a useful publication. "Or take up the work of one of the old engravers, for instance; buy a few of his prints at a sale at Sotheby's, go to the museum and ascertain what state of the plate they represent, compare them with the same artist's earlier and later work. You will soon become interested, and learn to appreciate the beauty and artistic value of them. You will begin to compare them with other work of their period, and before long you will have acquired an amount of knowledge about a particular branch of art that will be very valuable to you, if not to others also, and incidentally you will help to make yourself an artist by entering into and valuing the qualities of artistic work. By every means in your power learn to appreciate and love the beautiful things you find about you in nature and art, and then if you have the capacity for arrangement and construction you will design beautiful and noble things, and if you have not that capacity your work will, at all events, be qualified by good taste and moderation."

Mr. Bolton said he did not like to refuse the invitation to be present and address them, because he was an old member of the Class of Design, and he felt that while he would not give a special address, yet he could support what was said by Mr. Keen. He would, however, take that opportunity of referring to the gratitude which pupils owed the heads of offices, for he knew personally how many times Mr. Keen had given him good advice in regard to his work in class designs. Pupils, if they were treated as he was by Mr. Keen, owed a very great deal to the heads of the offices. Personally, when particularly busy he wished he had not got an office at all or pupils who wanted instruction. He remembered Mr. Mountford, in the course of some very wise remarks to students, saying: "When the head of the office is in the midst of a competition do not go and ask him whether a 14-in. wall is to be put in with a thin line or a thick." The Brown Book told one the date at which one joined that Association, and he found he joined in 1885, exactly twenty years ago. In those days he had a very bad habit of keeping a diary—a habit which he had long since abandoned—and he had the curiosity to turn up that diary, and he found this entry under the date of October 9, 1885:—"Association Soirée, Prince's Hall; thought of going, but did not." He thought that was a characteristic entry, and would apply to three-quarters, or certainly two-thirds, of those present. What happened was this. A young fellow coming back from his holiday felt very energetic, and made up his mind to go in for these classes, and for the first two or three months there were more members of the classes than the visitors could attend to. But when February and March came round they found that what was a promising class had dwindled down to a very small number. He would impress upon them that the value of these classes depended very much on the regularity with which a student attended them. He had seen a young man who had never made a design before come to a class and make a design which was absolutely bad. After a very few meetings, however, they would find that such a man would improve immensely. Therefore he urged on those present to come to the classes, however feeble they might feel themselves to be. It might be that they had never made a design before, but that did not matter. If they came regularly and put a sufficient amount of trouble into the work, he would undertake to say that at the end of the session they would be in a totally different position to what they were before. Another entry in his diary was October 29:—"Saw the Association Brown Book. The subject to be dealt with was 'Doorways.'" Mr. Keen had told them that the study of old examples was the right thing for young men, and that coincided with what was done twenty years ago from the entry in the Brown Book. Turning to his diary again, he noted the entry:—"November 12. Tufton-street; museum full of smoke and cold draughts." That state of things did not exist now, for when students came there there were not only good examples to be seen, but there was a considerable amount of comfort, which did not exist in the old days. There were other extracts, which he would not trouble them with, but he did wish to impress on them the benefits they could gain by coming to work at that place and the advantages they would get by continuing to work when they had once started. He remembered meeting a student in the old days and advising him to join the Association classes, and he replied: "I do the subjects and work them out at home, and I do not think it worth while going to the meetings." He did not think that any man who went into his work with such a spirit would do much, because it was a great mistake to feel that what they elaborated for themselves would be all the better for not being seen. The fact was that a young man beginning to make designs thought they were a great deal better than they really were, and the advantage of coming to such classes was that a man learned that there were others in the world who could do something besides himself, which was one of the most valuable lessons a man could learn. By attending the classes they would benefit by exposing their designs to the free and friendly criticism of their colleagues, and they would have the advantage of seeing what others had done and noticing how they treated the same problem in different ways, and they would probably come to the opinion that, after all, their own design was not the best. He remembered going over a building of an old fellow student and noticing some moulding he had done, and he had asked him what on earth he did a thing like that for, and he replied: "At the time I did it I thought it was the only possible mode in which it could be done." There were, however, many ways of doing it, and doing it better. The advantages of these classes were that these things were brought home to them, and they got the advantages of companionship in study. He remembered asking a fellow student in an office why he did not come to the classes, as there was a deal of work, but also a good deal of fun, and the man replied: "I can see where the work is, but I cannot see where the fun comes in." He could only advise them to come, and if they could not find a certain amount of fun in it they had better not be architects.

Mr. H. H. Statham said that in the light of Mr. Bolton's confession of his early entry in a diary he felt rather virtuous that night, because his own entry in the diary for to-day would have been:—"Thought I would not come, but did." He was very glad he did come and have the pleasure of hearing the very well-reasoned and practical paper of Mr. Keen, with all of which he agreed entirely. He was particularly in agreement with Mr. Keen on what he said about the advantages of irregularity or little accidents in a site, as affording suggestions. He remembered a man complaining to him once that he was going in for a competition, and he said: "It is such an abominable site; it has no regular shape." He replied: "That is the very thing to suggest treatment to you." In regard to making designs for some special sites, Mr. Keen suggested that it would be a very good thing if designs made there were calculated for some special site as if they were going to treat it anew. He thought that was a very good suggestion, and they would realise it if they compared it with the plans which were made by the students at the Ecole des Beaux-Arts. There they were given the problem to design a bank, or something of that sort, and were given no limitation of site, or position, or anything. They produced the most magnificent designs on the largest possible scale, which never would be built except in Utopia or some city where money would be of no consequence at all. There was, of course, the advantage and pleasure of giving full scope to one's ideas of the sublime, but it did not fit people so well to deal with the practical problems which came before them in architecture. Then Mr. Keen spoke about the advantage of studying old examples. He quite agreed with him there, with this limitation—that they should be studied keeping in mind all the time that the object was not to imitate them, but to learn from them. He thought that the reason why they began studying the orders and studying ancient examples in classic and Gothic work was really to form a taste and to form a perception of what was refined and what was in good proportion in architecture. Now the want of that was very obvious in some of the efforts which engineers made in design. He was particularly struck with it two or three years ago, when a really able paper was read by a young engineer at the Institution of Civil Engineers upon the æsthetic treatment of bridges or of engineering works—he forgot which. The paper was an admirable one; the principles were first rate, and there was nothing from beginning to end which an architect would not have agreed with. He got into correspondence with that gentleman, who sent him the design of a bridge which he had made. It was one of the most awful things he had ever seen in his life. The reason was that, although the engineer had thought about the principles of the subject, he had obviously never been through the training that architects went through in studying ancient works, and copying and drawing them, by which they got their perception and architectural tastes developed. That was perhaps the most important reason for studying old work—that it formed their taste and led them to see how they got refinement and proportion, and how the designs which had not got these qualities differed from the designs which had them. He was sorry he had not any paper on which to take notes, for there were one or two other points in Mr. Keen's paper which had struck him, and which he would have referred to. Taking it altogether, he felt that the student could not do better than take to heart what Mr. Keen had said, and endeavour to follow it as much as possible. He had very much pleasure in proposing a vote of thanks to the reader of the paper.

Mr. A. Maryon Watson seconded the vote of thanks. He said that Mr. Bolton had suggested some reasons why students should come to those meetings, but one great thing was that not only did they meet with one another, but they had the immense privilege of meeting men who were successful architects, and they heard their ideas about practical matters. In an ordinary office they might meet with one successful man and get to know him very well, but if they came down to those classes and worked intelligently they would probably make acquaintance with men who would be friends for the rest of their lives.

The Chairman, in putting the vote of thanks to the meeting, said both the addresses had been exceptionally interesting, and that by Mr. Keen was quite one of the best he had ever heard. It was so practical, so full of real good suggestions and ideas and sound advice, that it was almost impossible

to know what special point to take up. He could only advise students to read it again and thoroughly digest it. There was one point which Mr. Keen emphasised which was one that Mr. Leonard Stokes referred to in that room the previous Friday night, and it was that students when they were designing should accustom themselves to thinking of the building as a whole—seeing it in perspective, in the round, thinking of it complete in itself. They ought not, as used to be the case in his young days, design the façade and let the rest take care of itself. They would never make a good design unless in their mind's eye they could see all parts of the building from the top to the bottom, the inside, and everything about it. Another point touched on was the question of features connected with the measurement of old buildings and old work. Anyone who had measured old buildings would find that a feature which looked a most important thing on the building was, if it was set up geometrically on the drawing, reticent and quiet, and would be surprised to find how it sunk into the whole façade of the building when drawn on paper. If they took some of the XVIIIth century houses they would find how quiet and simple the old ones were compared with some of those they did now, even although they thought they were quiet in themselves. He thoroughly agreed with Mr. Bolton when he advised all students to come and join the classes. In these days they had exceptional opportunity in London to get the advice and criticism of some of the best and ablest of the rising architects, and often that of those of eminence in the profession. He (the speaker) was brought up in a small county town, and until he joined that Association he never even saw a sketch-book. With all the advantages they now had, he could not understand how any student who was at all enthusiastic about his profession did not avail himself of the opportunities provided. He was sorry last session to see some of the classes dwindle down to five or six. It was a grievous pity, and he did hope that this session they would have full classes.

The vote of thanks was then heartily agreed to, and the meeting terminated.

MAGAZINES AND REVIEWS.

IN the *Art Journal* Mr. Croal Thomson devotes this chapter of his series of articles on the National Gallery of Scotland to Raeburn, of whose portraits some fine illustrations are given. In the critical estimate of Raeburn we quite agree. Mr. Waterhouse gives us the second chapter of his essay on "Painters' Architecture," taking his examples this time from Mantegna, and very fine the three examples are. We doubt, however, whether there is the symbolical motive which the author assumes in the broken-off arcade which forms the background to the "St. Sebastian." Our impression would be that Mantegna painted it because he liked it, and broke off one arch because he wished also to show the sky beyond. Partially broken off arches and entablatures are common in Early Renaissance backgrounds, and were nothing more than pictorial effect. The Middle Temple Cup, designed by Mr. Fletcher as a presentation from the Benchers of the Middle Temple to the King, of which two illustrations are given, is what may be called a very "sumptuous" piece of work, but hardly represents more than the commonplaces of design in work of this class. Mr. Edwin F. Reynolds gives the first chapter of an essay on Byzantine craftsmanship. Æsthetically, he observes, the significance of Byzantine art lay in the regeneration of craftsmanship from the effete tradition of Roman decoration. It was, in fact, the grafting of late Greek refinement on the constructive building power of the Romans. The present article deals mainly with the most prominent architectural monuments of Byzantine type.

In the *Burlington Magazine* Miss Cecilia Waern commences a series of articles under the title "Some Notes on Mediæval Palermo," that strange meeting-ground of Byzantine and Norman elements in architecture and ornament. In the present chapter of the essay on "Life of a XVIIth Century Dutch Artist," Mr. Martin arrives at an important conclusion in regard to the light under which Dutch painters of this period worked. The frequent representation in their pictures of the painter working by a high light at the left hand constitutes undoubtedly a presumption that such was the light they habitually worked in, and (following on that) leads to the important conclusion that in that case their pictures ought to be seen by a side light, and not by a front or top light; a conclusion which is being practically followed at present in more than one museum.

The *Berliner Architekturwelt* contains a whole series of illustrations of the new Rathaus of Charlottenburg, the same class of building as what we call in London District Council offices. The exterior shows a powerful though somewhat heavy and gloomy masonry design; there is some remarkable detail in the interior, especially in the staircase and the upper hall; odd and even grotesque in places, but undeniably vigorous. The architects are MM. Reinhardt & Süssenguth, of Charlottenburg.

The *Architektonische Rundschau* shows us an extraordinary specimen of architectural originality in a building in the Leipziger Platz at Berlin, called "Warenhaus A. Wertheim" (our German dictionary does not supply us with "Warenhaus")—we presume a commercial building. The lower two stories consist of a great open arcade forming a kind of cloister, with sculpture arranged over the arches in a different fashion in each bay; above this the whole front is a mass of vertical stone mullions with lofty narrow lights between, and a row of open traceried panels at the top. It is a curious affair, but is worth looking at. Professor A. Messel is the architect.

The *National Review* contains a picturesque and powerfully written article by the Earl of Ronaldshay, entitled "A Visit to Baku." Familiar as the name of this famous oil-producing district has long been in our ears, even before the disastrous events of the last few months, there are probably few Englishmen who have any distinct conception of the character of the region and of the work done there. Lord Ronaldshay has lifted the veil, and portrayed for us an extraordinary though lurid spectacle. The town of Baku, we are told, has the outward indications of prosperity, shown in imposing stone buildings, shops with plate-glass windows, large hotels and restaurants; but the country round is an arid waste of scorched marl without a blade of grass, and fresh water is only to be obtained by the distillation of the salt water of the Caspian Sea. Beneath the soil is a vast mine of oil. By merely sticking an iron tube in the earth and applying a light to the upper end you can light a flame that will burn for years, or till the tube is decomposed.

"But curious as are the natural characteristics of the country, the strangeness of its appearance has been infinitely added to by the devising hand of man. Imagine a stretch of barren ground from which rise hundreds of pyramid-shaped towers, all packed as closely to one another as the trees of a forest; picture to yourself further a lurid atmosphere, heavy with the reek of oil, and throbbing with a wild medley of sounds almost defying classification—the grunting and groaning of pulley and windlass, the panting of engines, and a roar and hiss like the rushing of many waters which issues from furnaces where liquid fuel is in vogue—and you have some faint conception of the weird spectacle presented by the great oil-field of Balakhani. And Balakhani is but one of the oil-fields of the Caspian. Each one of the pryamid-like erections, known technically as *derricks*, represents an oil-well which is producing, or has produced in its time, many tons of oil a day, and on the Ansheronsk peninsula there are in round numbers some 2,000 of these erections.

There is something fascinating in watching the operations that go on under cover of a derrick. A hollow metal cylinder is let down a boring, a few inches in diameter, 2,000 ft. perhaps into the bowels of the earth. The level of the oil having been reached, the engine is reversed, and the cylinder, now filled with the crude product, is drawn laboriously to the surface once more. Here the vessel is emptied automatically into a trough, whence the rich, slimy-looking, dark green fluid, with its glittering pink froth, passes into reservoirs to await its final journey to the refineries. I watched a baler on the Bibi Eibat field making its journey backwards and forwards into the depths of the earth, and became conscious of a sensation approaching respect for an implement that with clockwork precision and regularity was raising its 100 tons of oil a day."

The wells sunk are only a few inches in diameter; the initial cost of sinking one is somewhere about 5,000*l.*; and it has occasionally happened that the accidental fall of some implement or other obstacle has choked a well beyond recovery. One company occupied several months in endeavouring to clear away something that had blocked their well, and eventually were forced to abandon it and sink a new well. But apart from such misfortunes, the result of carelessness, the return for the outlay seems, as far as the natural conditions go, to be immediate, certain, and enduring. As to the present position, and the estimated extent of the losses which have been suffered from the recent riots, we must refer the reader to the article. Out of this evil, the author suggests, good may come, in the fact that thereby "one more nail has been hammered into the coffin of a system of an administration which, neither at home or abroad, has shown itself worthy of the sacred trust of the guidance and government of a people which it has far too long assumed."

Mr. A. C. Benson's article in the same magazine, "A Stronghold of Art," is not exactly what its title would lead one to expect, for it is concerned with literary art, not with Art in the sense usually understood; though a good deal of his argument would apply to Art as well as to Literature. The main object of the article is a protest against individualism and sensationalism in style, and the suggestion that an Academy of Letters might exercise a restraining influence in favour of a severer and more balanced manner of writing. This is not a subject into which we can go in these columns, except to remark that while we quite agree in the general truth of Mr. Benson's indictment, the object-lesson afforded by the French Academy does not lead one to expect much from such an influence. None of the successful authors of modern France—either those who deserved or those who did not deserve their success—can be held to have been much influenced by the French Academy; indeed, one of the most successful, Daudet, snapped his fingers at it and insulted it in a novel written *ad hoc*. But in regard to criticism we can sympathise entirely with Mr. Benson when he says—"What one desires is that there should be something central and authoritative. There are certain newspapers which to some extent perform the desired function, but the best newspapers tend to reflect private mannerisms and prejudices." This is even more the case in art-criticism than in literary criticism. When we see journals which profess to be, and ought from their reputation to be, centres of light and leading, publishing criticisms in which everything that is sane and central in art is derided, and the works of cranks and faddists are held up to admiration as representing the only serious art of the time, one must recognise that art-criticism in this country is at present in a very unsatisfactory state. But whether an Academy of Art-Criticism would mend it, is another story.

In the *Monthly Review* an article on "Workmen's Trains," by Mr. Edwin A. Pratt, puts the case in regard to them from the railway companies' point of view, and shows pretty conclusively that the railway companies are really to a great extent victimised to make a workman's journey cheap, to an extent which is inequitable as regards the companies and pauperising as regards the workman, and totally contrary to all sound principles of political economy. The cry, he says, that "workmen cannot afford more than twopence a day for travelling expenses" is followed by the contention, not that employers should give a slightly higher rate of wages, but that railway companies should be invited to regard twopence a day as the recognised amount a workman should be required to pay, for any distance, with trains run to suit his convenience, irrespective of that of other travellers. The popular gibe that there is "one law for the rich and another for the poor" is inverted in this case, for the law is all for the poor, to an extent which seems utterly unnecessary and illogical. Our manner of nursing our artisans with cheap trains was one of the points in the indictment against the nation of our German critic in a recent number of the *National Review*, and Mr. Pratt's article sharpens the point of it. In the same number Miss Clerke gives an interesting and masterly review of our present stage of cosmical knowledge and theory, under the title "Evolution in the Heavens"—an article partly suggested by Professor Darwin's recent address at the meeting of the

British Association. The article tends, whether intentionally or not, towards inculcating humility in the human mind, as showing how little—how very little—we know or even conjecture, in regard to the making and the condition of the universe, with all our applications of scientific observation and calculation for some three centuries—for astronomy, properly so called, is scarcely older than that. Coming down to things terrestrial, we have an article on "Pisa" by Mr. Arthur Symons, who in this instance keeps within his province as an observer with a picturesque literary style, and does not make the mistake of attempting art-criticism. There is an article by Mrs. Ady on "A Tomb at Ravenna," that of an ancient and (but for the monument) nearly forgotten warrior, Guidarello Guidarelli, whose monument has recently been removed from the Franciscan church to the Accademia de Belle Arti. The monument, of which a photograph is given, shows a singularly beautiful recumbent figure in armour, the head slightly drooped to one side as if just dead. It was well worth while to bring before English readers an illustration of this fine work of the Early XVIth century, which seems to be little known. It is attributed to Tullio Lombardi.

In the *Nineteenth Century* Mr. Oswald Crawfurd writes an article on what he calls "Nature Gardens," which on examination turns out to be practically a recommendation to return to the old trick of artificial landscape as practised by the English landscape gardeners of the XVIIIth century, Kent and Capability Brown, with all its childish devices for artificial scenery, rivulets, etc. We are really surprised that anything so foolish and involving such a complete step backward in taste and perception should have been allowed to appear in the *Nineteenth Century*. Captain Verney's important suggestion in regard to a Municipal Concert Hall, in the same issue, we have referred to in another column (see "Notes," page 383).

The *Century* contains an article on the new Naval Academy buildings at Annapolis, U.S.A., of which, through the courtesy of the architect, Mr. Flagg, we have already given a series of illustrations. The illustrations given with this article are, however, from different points of view, and give some new ideas as to the grouping and effect of this immense assemblage of buildings.

Harper contains three illustrations to Shakspeare's *King Henry VI.*, by Mr. Abbey, the accompaniment to the first part of a critical article by Mr. Ernest Rhys on the play which, as he says, "is called Shakspeare's, but is really Everyman's." The literary article is much the best part of the performance; Mr. Abbey's illustrations do not serve to alter the opinion we have before expressed, that this accomplished artist is much more successful in his large and carefully considered paintings of Shakspercan scenes than in his slighter illustrations in black and white. The scene between Talbot and the Countess of Auvergne, where the English general turns the tables on the haughty lady by bringing his soldiers in, is dramatic enough, but Talbot was never intended to be such a hang-dog looking ruffian as Mr. Abbey represents him; a reading quite out of keeping with his courtesy to the lady at the close of the scene. The picture of Joan of Arc standing in an embrasure of the battlements of Rouen, to welcome the Dauphin and his forces, is fine and vigorous in design, but the artist has not even taken the trouble to follow the text; he represents Joan leaning on her sword, whereas it is expressly said that she appears on the battlements "holding out a burning torch," which was the prearranged signal to the Dauphin. The picture would have been just as effective with the torch, and when one is illustrating Shakspeare (or what passes for Shakspeare) one may just as well illustrate him correctly.

Scribner contains, under "The Field of Art," a short account by Mr. Russell Sturgis of the decorations of the amphitheatre of the Sorbonne, the principal portion of which is Puvis de Chavannes' great symbolical picture of the arts and sciences, which was illustrated in our pages at the time of its execution. Mr. Sturgis does full justice, of course, to the great qualities of the painting, but expresses a regret that so great a painter "should be compelled to give his time to thinking out these dreamy schemes of personification and metaphor"; and wishes that Puvis de Chavannes had been commissioned, instead, to paint four or five scenes illustrating the past history of the Sorbonne. We cannot agree with him. These "dreamy schemes" serve just as well for the exhibition of fine design and drawing (colour was not the artist's strong point), and furnish an opportunity for poetic and imaginative conception, which is a higher aim than the painting of historical incident. The number contains a popular article by Mr. Elmendorf on "Shrines of the Desert," which is interesting from the number of photographs accompanying, illustrating the Kerouan mosque and other buildings, as well as bits of Arabian desert scenery of waste and oasis.

The *Révue Générale* contains an admirable article under the title "Pourquoi et comment défendre nos Paysages." We learn from it that the Belgian Government has established a "Commission des Sites et Monuments Naturels de Caractère Artistique," the object of which is to prevent the disfigurement of ancient buildings or of sites of natural beauty. It is apparently an effort to do something, but by official authority and not by private effort, on the same lines as our "National Trust," to which in fact reference is made at the close of the article. The author, M. Carton de Wiart, goes at considerable length, among other things, into the question of railways and engineering works in general in their relation to natural scenery, and the extent to which they should be controlled by State interference to prevent injury to the landscape.

Mr. Lewis Hind's kind of artistic pilgrimage, under the title "The Education of an Artist," which is continued in *The World's Work*, contains some good and enthusiastic writing on ancient art and ancient cities, accompanied by a fine set of illustrations, some of them of works little known, at all events not hackneyed by illustration.

Knowledge gives its readers a very fine coloured plate illustration of the corona during the recent eclipse, from a drawing made by Major Baden-Powell at Palma; and there is a short but valuable article by Mr. Crommelin on "The Two New Satellites of Jupiter," going into some interesting considerations as to the peculiarity of their orbits and of their relation to the planet and its other satellites.

COMPETITION DESIGNS FOR EPSOM PARISH CHURCH.

THE designs submitted in the limited competition for the new parish church at Epsom were exhibited at the vicarage, Epsom, last week. Mr. Fellowes Prynne was appointed assessor, and the competitors were Mr. Banister, Mr. Bidlake, Mr. Mileham, Mr. Temple Moore, Messrs. Nicholson & Corlette, Mr. Hatchard Smith, and Mr. Spooner. Mr. Fellowes Prynne has made his award in favour of the design by Messrs. Nicholson & Corlette. The authors of the successful design have won on their fine plan. This shows a nave and choir under one roof unbroken by a chancel arch, the wide side aisles roofed as if they have three transepts, connected by compartments square upon plan in the manner of St. Mark's, at Venice. The result is some interesting roofing above, and ample seating accommodation with unobstructed views of the pulpit and sanctuary from the major portion of the church below. There is sufficient vestry accommodation, and provision is made for procession and recession. A morning chapel is arranged for on the south side of the choir, and the organ balances it on the north. Externally, the design is not so satisfactory. A rather squat tower and spire is shown on the north side. This will not be built at present, the sum which it is proposed to expend at the offset being 14,000*l.*, a sum insufficient to build more than a part of the church. The drawings showing the exterior are not very satisfactory or pleasing in colour, and the design will look better in reality. An alternative design on the same type of plan is shown in the Byzantine style, but it is not so satisfactory as the winning design, and would be more expensive to construct and decorate. As designs, apart from the necessities of congregational worship, we like those of Mr. Bidlake and Mr. Temple Moore better than the successful one. Mr. Bidlake's design shows a very fine tower and spire at the west end, the base of which forms a baptistry, narrow side aisles are provided which light the nave, there being no clearstory; this always gives an impressive interior; the simplicity and largeness of the general design is shown by the most perfect draughtsmanship, giving an idea of great beauty of detail in the finished work. The alternative design by the same author shows the side aisles askew with the nave at an angle of about 30 deg., an expedient partly to suit the site, and partly for the sake of the congregation. We think the effect of this from the interior would have been a very doubtful success.

Mr. Temple Moore's design is, in many respects, superior to the others; the plan shows a nave and two lofty side aisles, giving an equally distributed internal height; the nave is roofed with a simple barrel vault, unbroken by a chancel arch; the choir and sanctuary occupy the last bays of the nave. The suggested treatment of details and tracery is remarkably fine; the only fault of the plan, and that a serious one, is the seating accommodation; too great a proportion of seats are out of view of the sanctuary and choir.

Mr. Spooner's design is carefully thought out, and illustrated with fine perspective drawings in colour. The character of the work is somewhat barren and thin, the tower particularly showing a lack of grasp of design. The other competitors show designs carefully thought out, Mr. Hatchard Smith sending two alternatives to his scheme. The site is a difficult one, the church having to be built adjoining the present parish church, which will be demolished when the new one is ready for occupation. The present church is of no architectural interest, being an indifferent example of the church building of seventy or eighty years ago.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the opening meeting of this Society on Monday evening the President, Mr. P. C. Thicknesse, delivered his opening address, which we give in full with the exception of a few preliminary remarks relating only to the affairs of the Society:—

"Since we all met in this room the most important thing that has occurred in the architectural world has been the much-lamented death of Mr. Alfred Waterhouse, R.A.

Mr. Waterhouse was, perhaps, the best known and most respected architect in England; to the majority of people he stood in his day not only at the head of his profession, but almost, one might say, as its representative.

And this was likely to be the case, for not only did he carry out more great buildings than any architect of that time, but when they were finished they were usually satisfactory, practically useful, well conceived, and planned.

The other side of his professional work, what one may call the public part, is what we architects miss most. His work at the Institute, which, for so exceptional a busy man, was very great, was always most wise and helpful. His work in adjudicating competitions and the like was done with vigour and ability. His grasp of the subject was so great, his mind so broad and fair, that I cannot remember ever hearing any man call his judgment in question.

We can, most of us, I suppose, remember all this of him, but to those who had the honour to meet him it would seem very remiss if I did not speak of his great personality, his strength of character, and, above all, to his wonderful personal charm. He was so entirely delightful that even when he found it necessary to say unpleasant things one found oneself forgetting the unpleasantness in the charming way he had said it.

Although all this personal greatness and charm was his, he did not, as he might easily have done, make his way in the world by it. It was entirely by his ability and hard work that he set his foot at once high up on the ladder of fame. While a young man he won his first important competition—the Assize Courts in Manchester. Of his ability at that time the building remains to

be judged at your leisure. Of the work to obtain it I was told on good authority that, having almost completed the drawings for the competition, three weeks before the time for sending them in, he thought of a better arrangement of plan which necessitated the remodelling and redrawing of the whole design. This he did, working, I was told, almost continuously night and day to complete before the appointed time.

I said this competition placed him high up in his profession, and I suppose the other great Manchester civic building, the town hall, which is certainly, to my mind, the greatest thing he ever did, placed him at least on equality with the biggest men of his day. Still young, he was very much in advance of his times, but fashions change, and, in his older years, he was regarded by a large section of his profession as having been left behind.

I was talking to a well-known architect—a man considerably younger than Mr. Waterhouse—of him one day, and, in speaking of his versatility, he said:—'He is in the first rank of water-colour painters, and, if he had wished, he might have been a very first-rate accountant.' It was, I should say, speaking from my knowledge of his work, for I knew him very slightly personally, probably a very accurate judgment of the man, for, add to these qualities his powers as a constructor, they were no doubt reason enough for the success of any man as an architect. And I think it was these two opposite qualities—the artistic and the very practical and commonsensible—that undoubtedly made Waterhouse what he was, and also it was between these two rocks that he tried to steer a straight course, and if he did not ever strike on either, I think he was often very nearly doing so. His love of colour and of beauty of form was often tempered too much, to the disadvantage of his buildings, by his great practical commonsense, and he often failed to find a beautiful way out of his difficulties. But that the colour was there, and was well balanced, no one can deny who criticises his work with an open mind.

Here I think is one great lesson we may learn from the study of Mr. Waterhouse's work. Colour and form are, of course, the two greatest things an architect has to work with, and we do not at present give colour its proper value in our designs. I do not think in England externally it has ever been considered enough. It is curious that, with our comparatively dull skies and general colouring, this should be the case.

Here in Liverpool we are prevented to a certain extent because of the dirt which accumulates on any material which has not a hard metallic surface. But our work is not confined to Liverpool, and in the country we should, I am sure, take colour more into consideration.

But even in Liverpool, ought we not to try and face this problem of colour, as Mr. Waterhouse tried to? A monumental building must be stone we say, to go black in a year, and then we lay the blame on the soot and smoke and dust; in fact, we run away from our difficulty, and don't find out some way of overcoming it. Waterhouse did his best by using terra-cotta and hard red bricks; it was most sensible and practical, and it has, at least, left us some brightness in our streets. Cannot we find a way that would introduce a brightness without the metallic surface, and yet make our buildings look monumental? It can't be merely that colour is not monumental—it is a question of a design suitable, both in scale and colour, to its purpose and position.

Whether this is possible or not we may at least put as much colour as we like and as will harmonise with the green of the grass and trees and blue sky in our country or even suburban work. I speak of this because I think I see a tendency to another turn of fashion in even our country architecture. Fashion in architecture is almost as variable as in ladies' hats, and some of us have veered only slightly at present, perhaps, from red bricks and red tiles to drab roughcast, white paint, and blue slates, and what is to be the end of it? Shall we go further round or back to more colour?

I feel no doubt that a good deal of Mr. Waterhouse's desire for colour in building came about by the dreariness of the streets of Liverpool, his birthplace, and Manchester, where he began his work. Think of this place in those days—dreary enough even now. But fancy the dulness of a place with no buildings worth speaking of but the town hall and Custom-house, and even they, from a colour point of view, dull and dirty! And almost all the rest poor, mean, Early Victorian houses, without a single spark of pleasantness or colour on their outsides, relieved here and there, I suppose, by the red, blue, and green bottles in the chemists' shops, and one or two bright red lamps of the doctors' houses. I fear we may be going back to this deadly dull building. I can't really call it architecture. We may vary it by a cast-iron church, painted and sanded, as the 1830 men did.

Gentlemen, it is in your hands, it is your responsibility if we sink so low.

We are inclined, I think, by our method of working, to give form more than its proper place in architecture. We draw our designs in pencil, and too often don't even attempt to colour them at all, and if we do we colour from a labelled paint-box—brick, stone, wood, lead—not labelled as it used to be in words, but in our thoughts, and our colouring gives no idea of what the material will really look like when the building is finished.

Why not try to work our designs in colour, and make the colour in some sort like the reality? I am not speaking of finished drawings coloured for the benefit of the contractor, but our own little first design. We should think of the colour more then, and give it its proper place with form, scale, and texture, instead of rather shunting it, and (if we can) having none—perhaps because we can only manage the reds and yellows of brick and stone.

Perhaps colour has got too much hold of me just now, for I wrote this address with the blue Atlantic breaking at my feet, the sunshine playing on the green grass and red fern, and the only shadows the black, frowning cliffs, lighted up here and there by the white spray that sprang suddenly a 100 ft. or so in the air, giving brilliant light where but a moment ago was only darkness."

MUNICIPAL CONFERENCE ON HOUSING AT SHEFFIELD.

AN important conference of local authorities and others interested in the housing question was held in the Council Chamber at the Town Hall, Sheffield, on Saturday, October 7. Sir John E. Gorst, M.P., presided, and there were present some 200 representatives of county and local authorities, including the West Riding County Council, the Corporations of Barnsley, Bradford, Birmingham, Brighouse, Chesterfield, Derby, Doncaster, Huddersfield, Keighley, Leeds, Liverpool, Manchester, Mansfield, Rotherham, Retford, and Sheffield; the Urban District Councils of Handsworth, Hoyland Nether, Mexboro', Penistone, Swinton, and Wath-upon-Dearne. The following societies were represented:—The Royal Sanitary Institute, the National Housing Reform Council, the Association of Municipal Engineers, the Co-partnership Tenants' Housing Council, the Bournville Village Trust, and the Garden City Association, Ltd.

The Town Clerk read a letter from the Lord Mayor (Alderman Sir Joseph Jonas, J.P.), regretting his inability to be present.

The Chairman, in opening the proceedings, said they had met to discuss the difficulties which practical men and women had found in the carrying out of the attempt to furnish better houses for the working classes. The resolution to be moved dealt with three distinct points of the housing problem in suburban areas. First, the power which the local authorities should have for purchasing land; second, the restrictions which should be put upon the construction of houses to the disadvantage of the community; and third, the relaxation of the building by-laws which prevail in the centre of a great city.

Mr. W. H. Lever (Port Sunlight) opened a discussion on the development of suburban areas. He said that, being a conference of local authorities, he understood that they must confine themselves strictly to the range of possibilities and powers already obtained by local authorities, and avoid all schemes of development having for their object the making of the biggest possible commercial profit, regardless of health and overcrowding. In short, not what would pay the best in cash possessions, but what would pay the community best in improved vitality, health, happiness and well-being of men, women, and children. In doing this they ought not to be unmindful of the fact that rates and taxes, local and imperial, were already strained to the point of hindering the progress and devlopment of the country. Sound finance was at the root of all real welfare work, and therefore they must so arrange their scheme that, whilst avoiding the will-o'-the-wisp of cash profit advantages, they did not get caught in the barbed-wire entanglements of increased burdens on the already overburdened ratepayers. He need not take up much time in proving that life in suburbs was infinitely more healthy than in towns. The death rate for suburban areas was 12 to 14 per 1,000, as compared with 20 to 25 per 1,000 in the centres of towns and cities where no overcrowding existed, and the death rate mounted up to 30 to 50 per 1,000 in the most congested areas. If the figures of garden cities might be accepted as normal, they indicated a state of good health that would enable succeeding generations to live to 140 years of age at Bournville, and to 110 years at Port Sunlight. But not only were suburban areas able to show a low death rate, they also showed a higher birth rate, all pointing to life in suburban areas being suited to mankind. There was another important consideration. We were paying a great many millions annually on the education of our children, but the country would never get adequate results in return unless and until our children were living under healthy conditions. It was true we had spent millions of pounds in demolishing slum areas and rebuilding barrack-like blocks of dwellings; but all this enormous outlay could never produce conditions of health equal to those to be produced in suburban areas. The real remedy, and only one, was dispersion from the centre and development of suburban areas, and he congratulated Sheffield on leading the way by having already purchased two estates with this object. Private enterprise could not accomplish this dispersion because the very basis of a successful dispersion depended on the possession of three requisites which municipalities could provide more readily and efficiently than they could be provided by private enterprise. These three requisites were cheap money, cheap land, and cheap rapid transit. Thanks to the various Acts passed relating to the housing of the people, municipalities could borrow money for acquisition of suburban areas within or without their boundaries, and so were in a position to provide the money required at the very cheapest possible rate. Private enterprise could not compete with this. Calculating that the suburban area had cost, say, 200*l.* per acre, interest at, say, 3½ per cent., and sinking funds to repay in eighty years would amount to 7*l.* 1s. per acre per annum. The extra cost of width of avenues and roadways could be met by the higher price per acre building sites on these handsome, wide roads would command. The next question was—should the municipalities build the houses or lease the land for building purposes? Experience had not shown that municipal building had always proved successful, whilst the capital required would be enormous, and the risk a speculative one. If trade at any time were bad, and houses became empty, the burden on other property owners and the ratepayers generally would become unbearable. Still, if no other course were possible, the risk must be taken for the many other advantages accruing to the whole community in health and social betterment. But, fortunately, there was another course open which was free from any speculative element, and that would be infinitely more profitable to the municipality, and requiring less than one-third the capital. He suggested that the municipalities should let the land at a ground rent based on cost price for a lease of ninety-nine years in large or small quantities, or even single house plots, and offer to advance up to not exceeding one-fourth of the cost of building houses, but with a limit of not exceeding 100*l.* to be advanced on any one house. This would provide just the little help that

was required to stimulate private enterprise in building. The financing of the remainder of the cost of house building would be easily arranged, partly by mortgage and partly by credit, and partly by the builder's own private capital. The effect would be immediate and powerful. Trade would be stimulated as never before, fresh population would be attracted to the town, overcrowding at the centre would be relieved, and slum property would fall in value and lie a drug on the market. The security would be absolute. At 200*l.* per acre, interest and sinking fund on the land came to 7*l.* 1s. per acre per annum; this, at ten houses to the acre, would be 14s. 1d. per house, and at twelve houses to the acre 11s. 9d. per house. At ten houses to the acre, costing 400*l.* each, 100*l.* per house could be advanced, and at twelve houses to the acre, each costing 200*l.*, 50*l.* could be advanced. The interest at 3½ per cent., and sinking fund over eighty years, would amount to 3*l.* 10s. 6d. per annum on the larger houses, and 1*l.* 15s. 3d. on the smaller. Adding interest and sinking fund for the land, the annual cost of each would be 4*l.* 4s. 7d. for the larger, and 2*l.* 7s. for the smaller houses. The ground rents would be perfectly secure. As to the capital required, no investment that England could make imperially or nationally would make so large a return. If it were done on sound financial lines it would relieve the ratepayer and taxpayer rather than add to their burdens, would place garden homes within the reach of all, would make it easy for an artisan to become the builder and owner of his own home, and, greatest of all, would be the means of producing men and women, boys and girls, and young children that would be able to uphold the prestige of our race the world over.

Councillor T. Shaw (Sheffield) moved that this conference of local authorities and associations interested in housing problems is of opinion that greater attention should be devoted to the laying-out and development of suburban areas, and that more extensive powers in relation thereto should be conferred upon and exercised by local authorities, and particularly (1) that the erection of workmen's dwellings by local authorities in suburban areas under part 3 of the Housing of the Working Classes Act, 1890, which, where carried out, has proved generally successful, should be further encouraged and extended, and for this purpose powers should be conferred upon such authorities to buy land whenever a suitable opportunity occurs, and to hold the same pending the development of the neighbourhood; (2) that further powers should be conferred upon and exercised by local authorities to ensure the planning generally of suburban areas so as to secure healthful surroundings and the provision of an adequate garden space to each house, and thus to prevent the erection on such areas of closely crowded dwellings, which will soon become insanitary; and (3) that where such powers are exercised, provision should be made for some of the more stringent requirements of the building by-laws (except such as are necessary for purposes of sanitation and health, and for securing adequate stability of the buildings), to be modified in the case of workmen's dwellings erected in suburban areas.

Mr. H. R. Aldridge (secretary of the National Housing Reform Association) seconded the resolution. They should aim at housing the people, not warehousing them. They had heard a good deal of Germany, but he was inclined to think that Germany had been overpraised.

Miss S. Gurney (London, hon. secretary of the Co-partnership Housing Tenants' Council) moved, as an amendment, to add after the word "purpose" in clause 1 of the resolution, "and for that of leasing such land for the development of estates to societies corresponding to the German societies of public utility." She claimed these societies combined the advantages of public and personal control.

Councillor Nettlefold (Chairman of the Birmingham Housing Committee) seconded the amendment. He did not believe in municipal house building until they were absolutely driven to it. He felt that corporations could not possibly solve this problem themselves, they must have the assistance of others. His experience was that private enterprise had not always had fair play. It had often been left alone to do this work in its own way, and then been found fault with because the work was badly done. It ought to be looked after, and directed, and kept straight.

Mr. J. H. Barlow (Bournville) said he was of opinion that our cities should be developed, not for the interest of the landowner or the builder, but for the interest of the community as a whole. Bournville was built by Mr. Cadbury with a clear conception of what he wanted to bring about. The one essential condition he laid down was that every house, however small, should have its own garden. There was an enormous demand for houses of the Bournville type. Applications were constantly flowing in, and they rarely saw a house to let. They did not attribute this to the fact that their rents were lower than the surrounding districts, for they were fair commercial rents. It was not because they were pauperising the tenants that the houses were sought after, but because they had rural surroundings and their own gardens. The most successful gardeners in Bournville were men who had spent thirty or forty years of their lives in Birmingham, never handling a spade before they went there. Those were the men who won the prizes at the flower shows, and whose gardens were the sight of Bournville.

Mr. F. Litchfield (London, secretary of the Co-partnership Tenants' Housing Council) considered corporations should, as far as possible, buy up all the suitable land for the purpose of housing the people. He believed many landowners would be prepared to let corporations have their land at a fair price if they knew the workers were going to have the benefit, and not building speculators. He admitted that they had not solved the problem when they provided a house at 5s. 6d. a week. The great need was to provide a house at a rent of 3s. 6d. per week.

Mr. Blanchard (Sheffield Federated Health Association) thought it an illogical position for a municipality to take up of buying the land and then of looking round for someone else to take it off their hands. He held it was the duty of the municipality to develop the land, and build on it for the benefit of the community.

Councillor Whiteley (Sheffield) complained that the municipalities were hampered in the solution of this problem by the restrictions of the Local Government Board.

Mr. Adams (secretary, first Garden City) asserted that in Manchester the whole of the suburbs were being developed in a higgledy-piggledy way, and slums were being created in the suburbs faster than they were being cleared in the centre of the city. The local opinion in Manchester was that the Corporation housing experiment on the Blackley housing estate was not a success, and they would be pleased to be relieved of it.

Councillor J. Fildes (Chairman of the Manchester Housing Committee) denied the accuracy of the statements made by Mr. Adams. The Blackley estate was four miles from the city, and they were ordered by the Local Government Board to put up at once 150 houses at rents of from 6s. 6d. to 7s. 4d. per week. They finished those houses a year ago, and he was delighted to say they had now 134 of those 150 houses let. As Chairman of the Housing Committee, he could say they were delighted with their purchase, which was ultimately going to be a benefit to Manchester. They went to the first Garden City when they began at Blackley, but they learnt nothing. There were no workmen's houses there, but they could show them to Mr. Adams at Blackley.

Mr. Morris (Liverpool) said he had been over this Garden City, which was so much boasted of, and it was so jerry-built that in thirty years it would be a howling wilderness.

Mr. W. H. Lever, in reply, referred to Mr. Blanchard's criticism that it was illogical for corporations not to build. He had sympathy with reform, but it was necessary to act with great restraint. Why stop where suggested? Why not be their own builders? Why not have their own quarries and get their own slates? Why not have their own brickyards and make their own bricks? His suggestion was that they should begin with the purchase of the land, and the leasing would give them what they required. They might learn with advantage in this respect from the great landowners who, instead of building, leased their lands to others.

The amendment having been accepted, the resolution, as amended, was carried.

Sir Charles A. Skelton (Sheffield) proposed a vote of thanks to Sir John Gorst and Mr. W. H. Lever. He said they did not want to build houses for slum dwellers. They wanted to build good houses into which people who were to-day compelled to live in the slums could go, and so elevate the whole of the people. If, however, they brought into them those who would make any place a slum, they would be hindering the work.

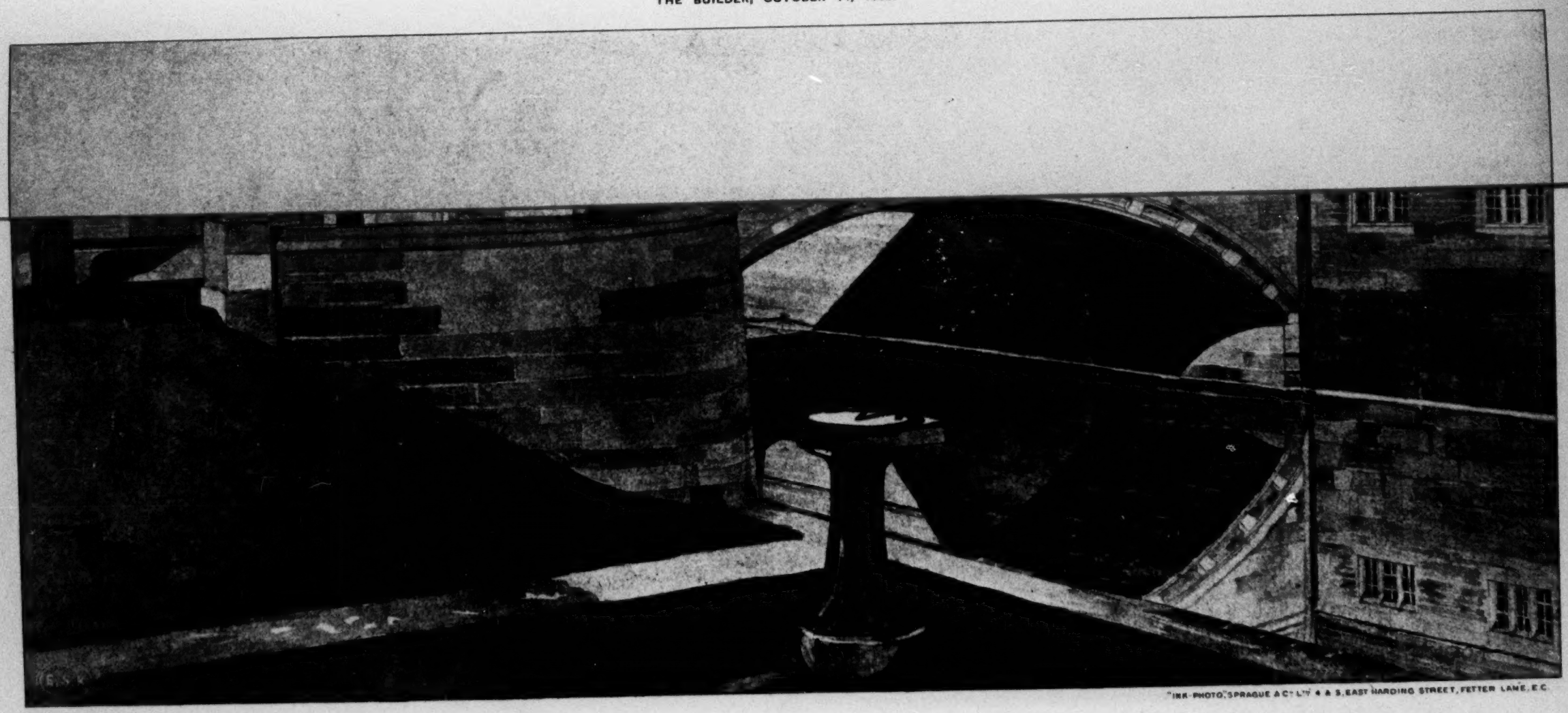
The Mayor of Barnsley seconded the vote of thanks, which was passed.

Sir John Gorst, in acknowledgment, said it had been to him a great pleasure to preside and to have impressed upon him the fact that so many gentlemen and ladies who were concerned in the administration of local affairs, and who possessed an official character had taken part in that meeting, and had shown how greatly this question of houses for the working classes was engaging the attention of the more educated people of this country. He did not pretend to be an authority on housing. He had been driven to this question from other branches of the general question of the social reform of the people. He had been convinced that all efforts at improving the health and education of the children and all their efforts to improve the condition of the working classes would come to nothing unless accompanied by a reform of their dwellings. That was what had brought him into the ranks of those who advocated housing reform, and it was a great consolation and pleasure to know that so many people had seen this matter in its true light, and were energetically endeavouring to carry out this reform by practical improvement in their various cities and counties. He sympathised very strongly with what was said by Councillor Whiteley upon the injudicious interference by the central government in this matter. What we wanted was a much greater discretion on the part of local authorities to purchase and use land as best in the interests of the community. In Germany there was less interference by the central authority with the local authorities, and such as there was came from a more enlightened class of reformers who had studied these things to better purpose. The meddlesome interference of persons who were ill-acquainted with the local necessities was a great evil, and was one of the obstructions to reform which everyone should contend against.

ARCHITECTURAL SOCIETIES.

LIVERPOOL ARCHITECTURAL SOCIETY.—The annual report of this Society shows a continued increase in the numbers of the Society, the Fellows now numbering fifty-seven, and the Associates sixty-three, a total of 120, compared with 113 last year. There are two Honorary Fellows and eleven Honorary Associates. The number of students is forty-one, an increase of five. The report states that, in the death, which occurred on March 4, of Mr. Thomas Denville Barry, the Society has lost its last foundation member. Mr. Barry was one of nineteen who met at the Lyceum, Bold-street, on March 1, 1848, and passed the following resolution:—"That in the opinion of this meeting the establishment of an architectural society would be productive of benefit generally to the profession, and is therefore highly desirable." Mr. Barry himself seconded the subsequent resolution appointing the first executive committee. In a further paragraph we read with interest that the Council have had under consideration the desirability of founding a travelling studentship in connexion with the Society. With this object in view, and in order more fully to carry out the objects of the Society, it is proposed to establish Standing Committees, an Educational Committee to take charge of all matters affecting education, and a Professional Practice Committee to take an active part in regard to local competitions and other matters affecting the profession.

LIBRARY, GAINSBOROUGH.—The new public library at Gainsborough, erected at a cost of 4,000*l.*, was opened on the 4th inst. by Mr. James Marshall, J.P. Messrs. Scorer & Gamble, of Lincoln, were the architects the contractor being Mr. Sprakes, of Doncaster.



"INK-PHOTO." SPRAGUE & Co. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DESIGN FOR A COVERED BRIDGE.—By Mr. Robert Atkinson.

The amendment having been accepted, the resolution, as amended, was carried.

Sir Charles A. Skelton (Sheffield) proposed a vote of thanks to Sir John Gorst and Mr. W. H. Lever. He said they did not want to build houses for slum dwellers. They wanted to build good houses into which people who were to-day compelled to live in the slums could go, and so elevate the whole of the people. If, however, they brought into them those who would make any place a slum, they would be hindering the work.

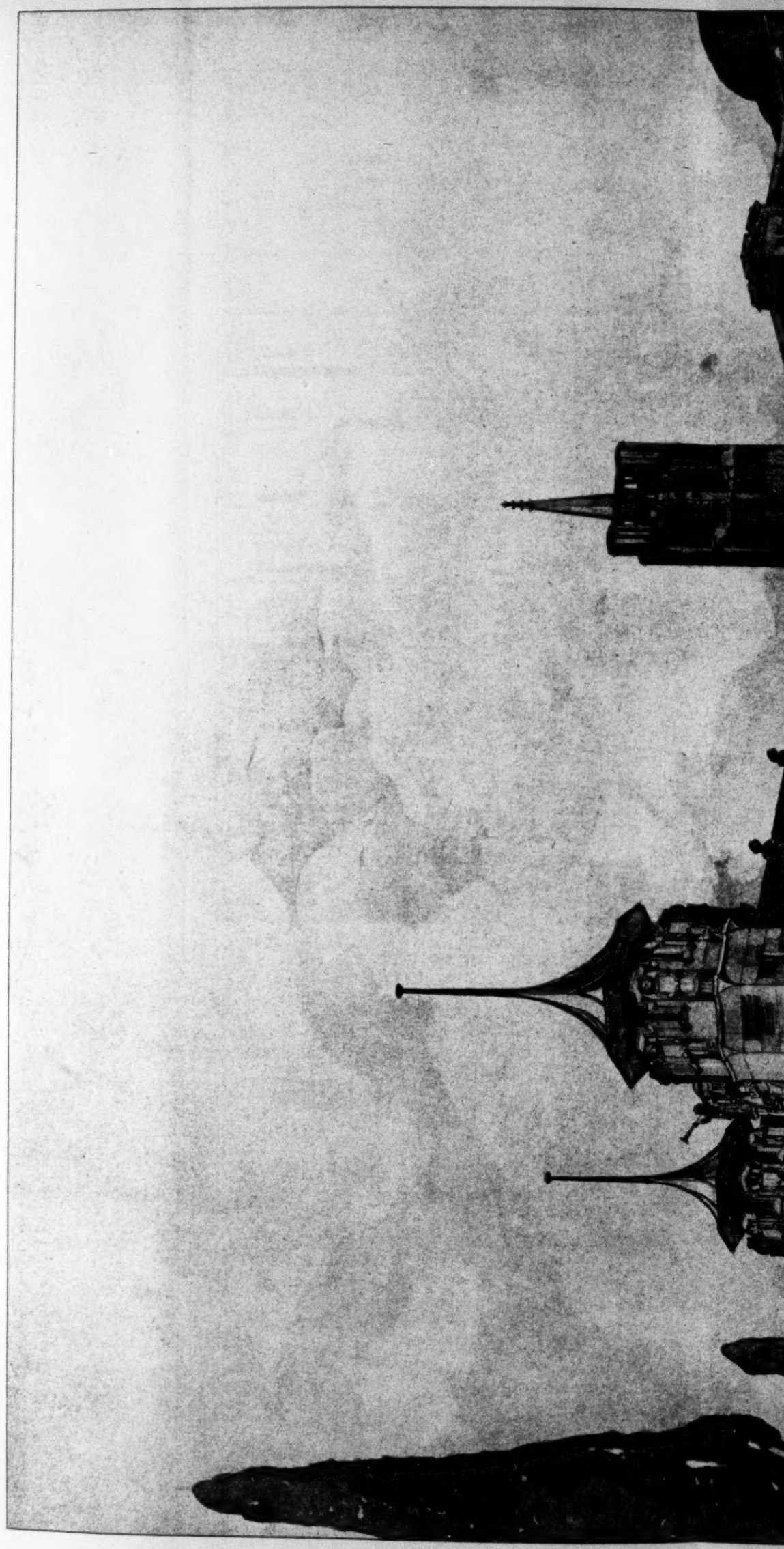
The Mayor of Barnsley seconded the vote of thanks, which was passed.

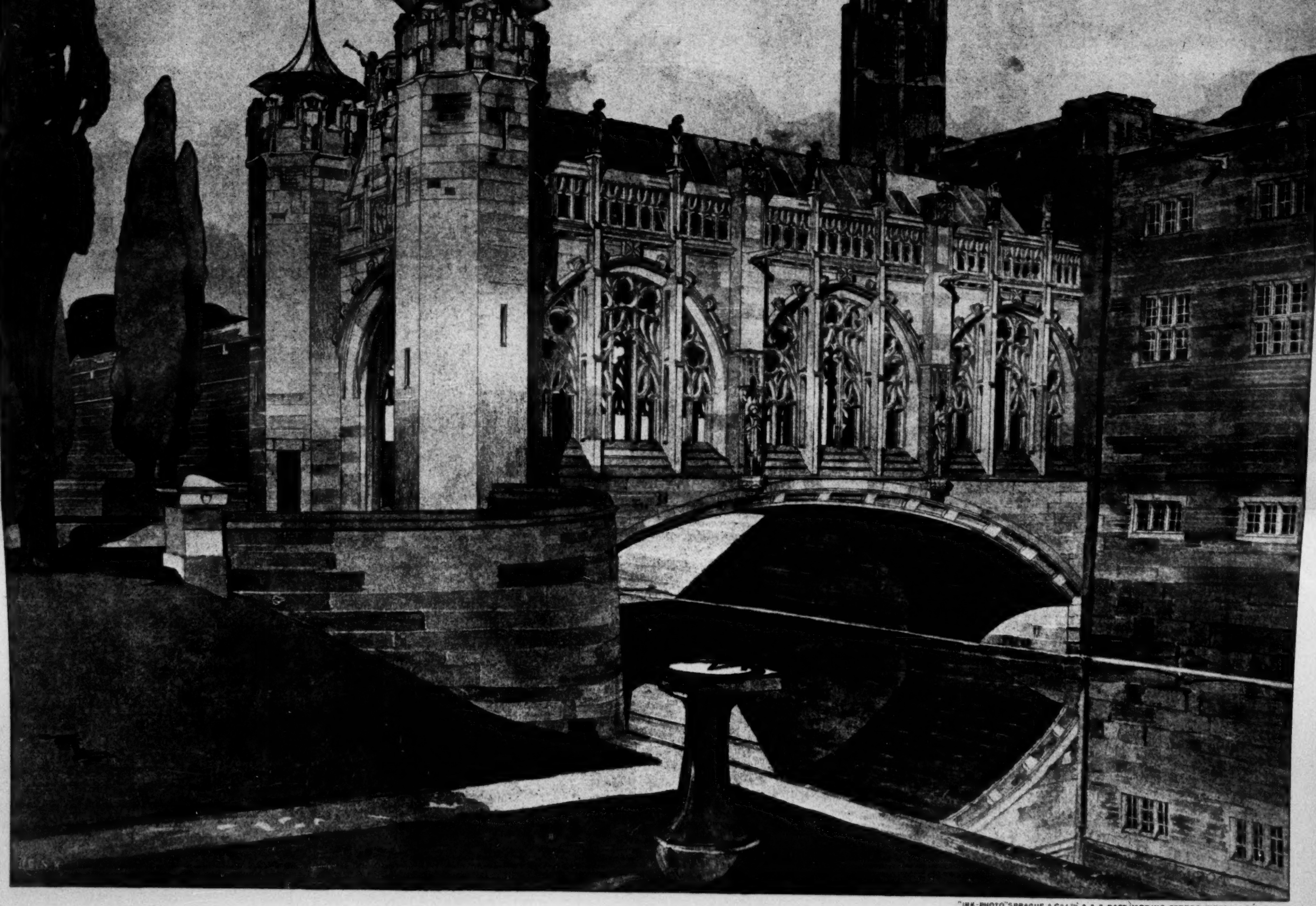
Sir John Gorst, in acknowledgment, said it had been to him a great pleasure to preside and to have impressed upon him the fact that so many gentlemen and ladies who were concerned in the administration of local affairs, and who possessed an official character had taken part in that meeting, and had shown how greatly this question of houses for the working classes was engaging the attention of the more educated people of this country. He did not pretend to be an authority on housing. He had been driven to this question from other branches of the general question of the social reform of the people. He had been convinced that all efforts at improving the health and education of the children and all their efforts to improve the condition of the working classes would come to nothing unless accompanied by a reform of their dwellings. That was what had brought him into the ranks of those who advocated housing reform, and it was a great consolation and pleasure to know that so many people had seen this matter in its true light, and were energetically endeavouring to carry out this reform by practical improvement in their various cities and counties. He sympathised very strongly with what was said by Councillor Whiteley upon the injudicious interference by the central government in this matter. What we wanted was a much greater discretion on the part of local authorities to purchase and use land as best in the interests of the community. In Germany there was less interference by the central authority with the local authorities, and such as there was came from a more enlightened class of reformers who had studied these things to better purpose. The meddlesome interference of persons who were ill-acquainted with the local necessities was a great evil, and was one of the obstructions to reform which everyone should contend against.

ARCHITECTURAL SOCIETIES.

LIVERPOOL ARCHITECTURAL SOCIETY.—The annual report of this Society shows a continued increase in the numbers of the Society, the Fellows now numbering fifty-seven, and the Associates sixty-three, a total of 120, compared with 113 last year. There are two Honorary Fellows and eleven Honorary Associates. The number of students is forty-one, an increase of five. The report states that, in the death, which occurred on March 4, of Mr. Thomas Denville Barry, the Society has lost its last foundation member. Mr. Barry was one of nineteen who met at the Lyceum, Bold-street, on March 1, 1848, and passed the following resolution:—"That in the opinion of this meeting the establishment of an architectural society would be productive of benefit generally to the profession, and is therefore highly desirable." Mr. Barry himself seconded the subsequent resolution appointing the first executive committee. In a further paragraph we read with interest that the Council have had under consideration the desirability of founding a travelling studentship in connexion with the Society. With this object in view, and in order more fully to carry out the objects of the Society, it is proposed to establish Standing Committees, an Educational Committee to take charge of all matters affecting education, and a Professional Practice Committee to take an active part in regard to local competitions and other matters affecting the profession.

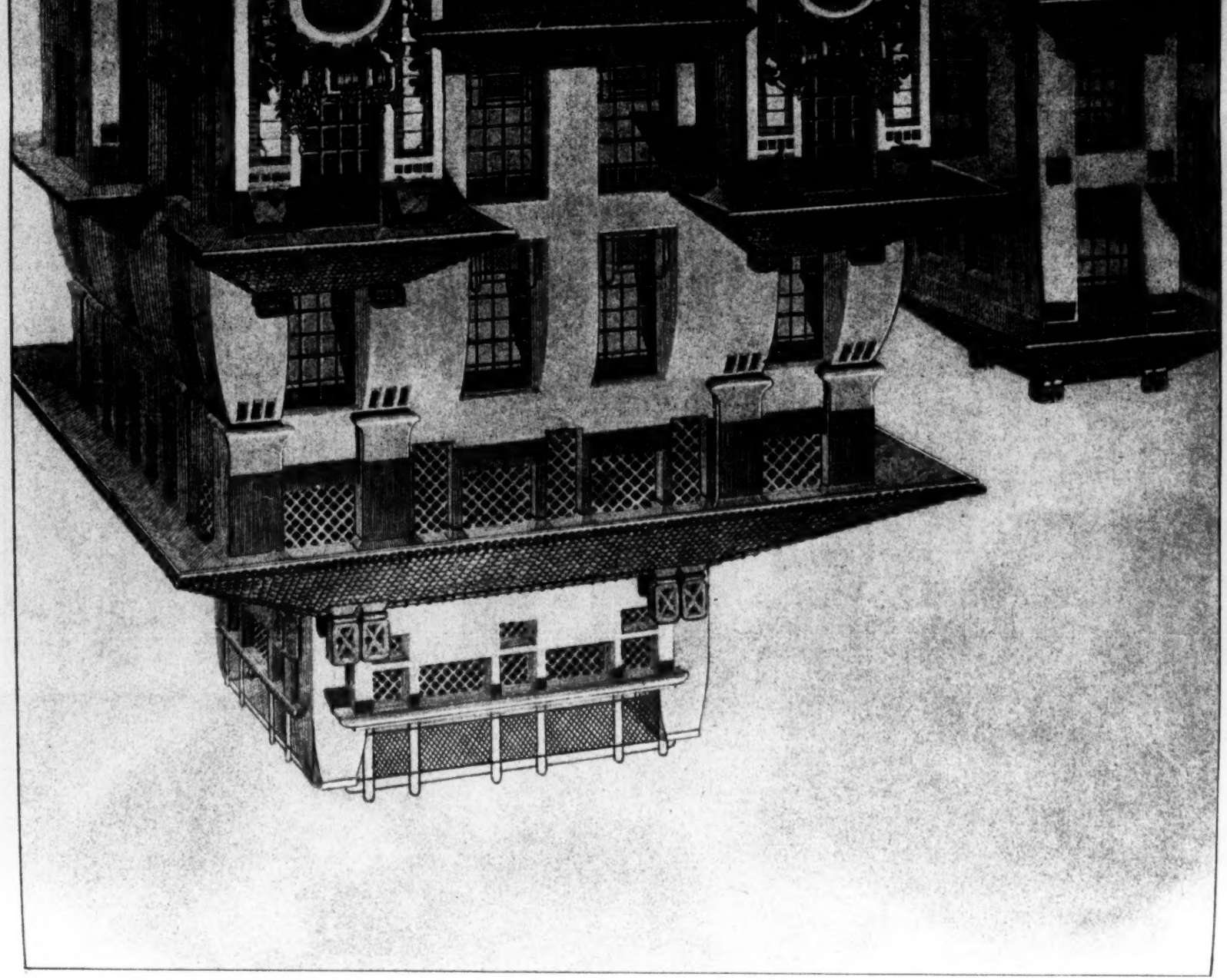
LIBRARY, GAINSBOROUGH.—The new public library at Gainsborough, erected at a cost of 4,000*l.*, was opened on the 4th inst. by Mr. James Marshall, J.P. Messrs. Scorer & Gamble, of Lincoln, were the architects the contractor being Mr. Sprakes, of Doncaster.

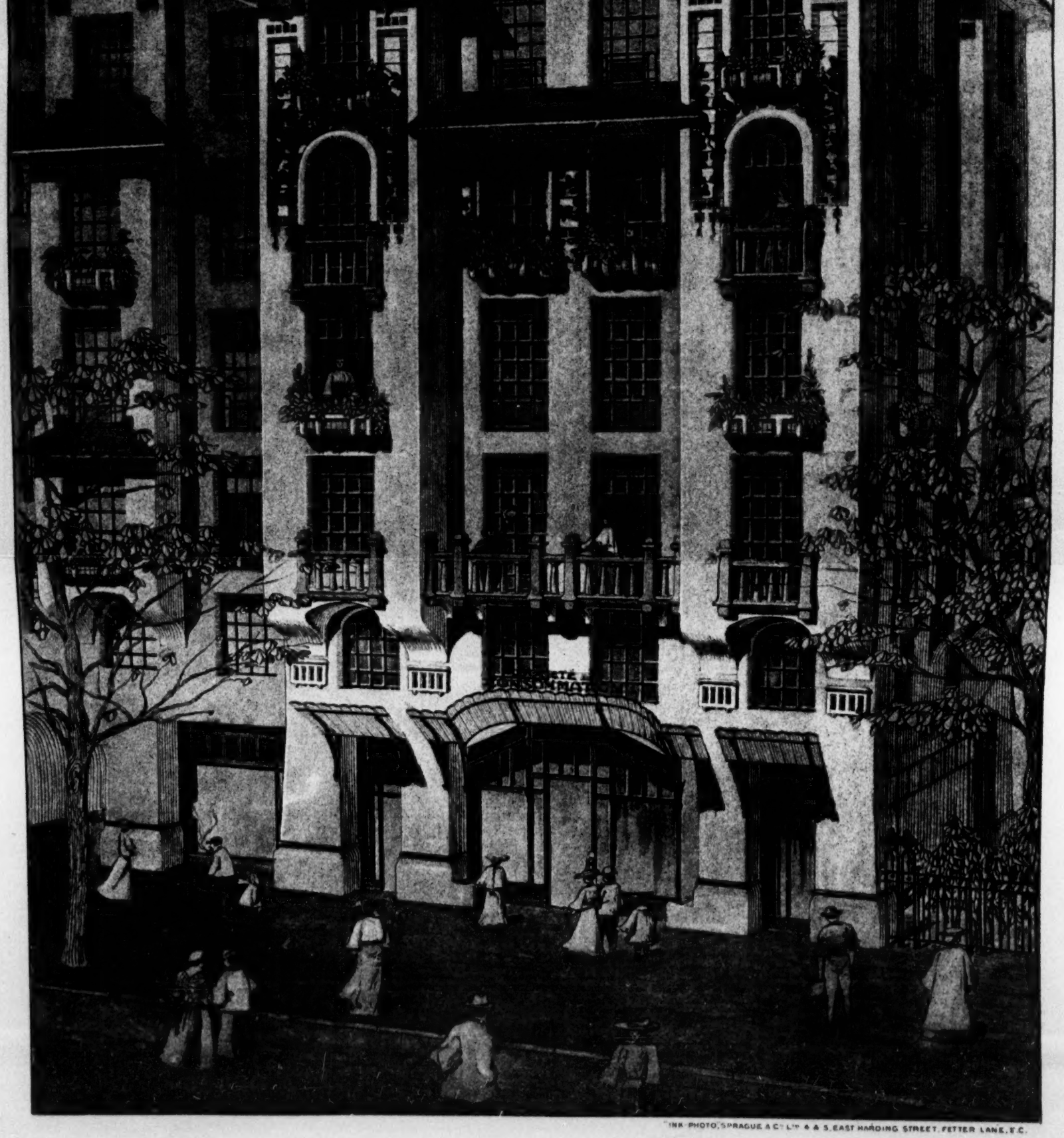




"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DESIGN FOR A COVERED BRIDGE.—By Mr. Robert Atkinson.



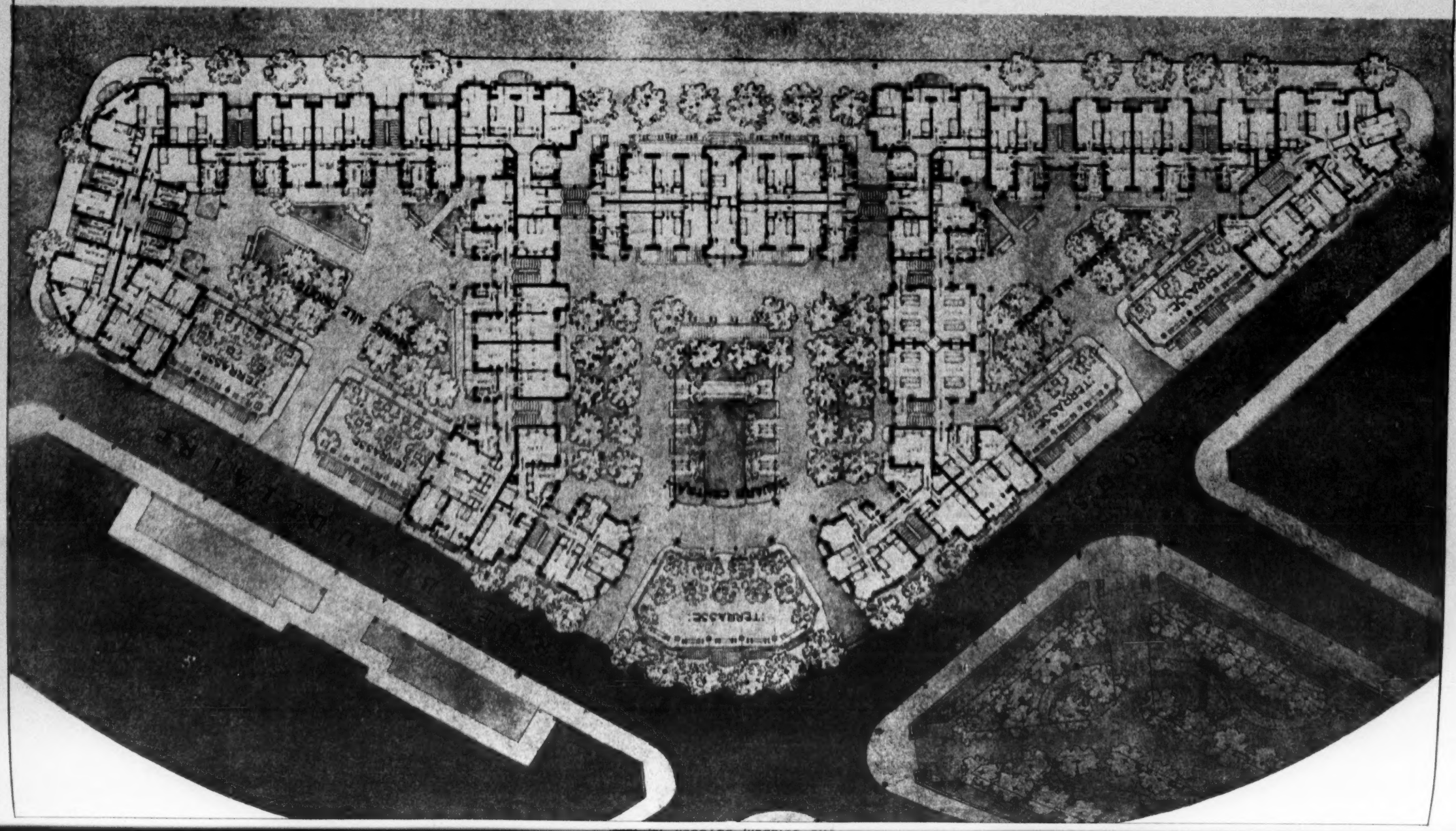


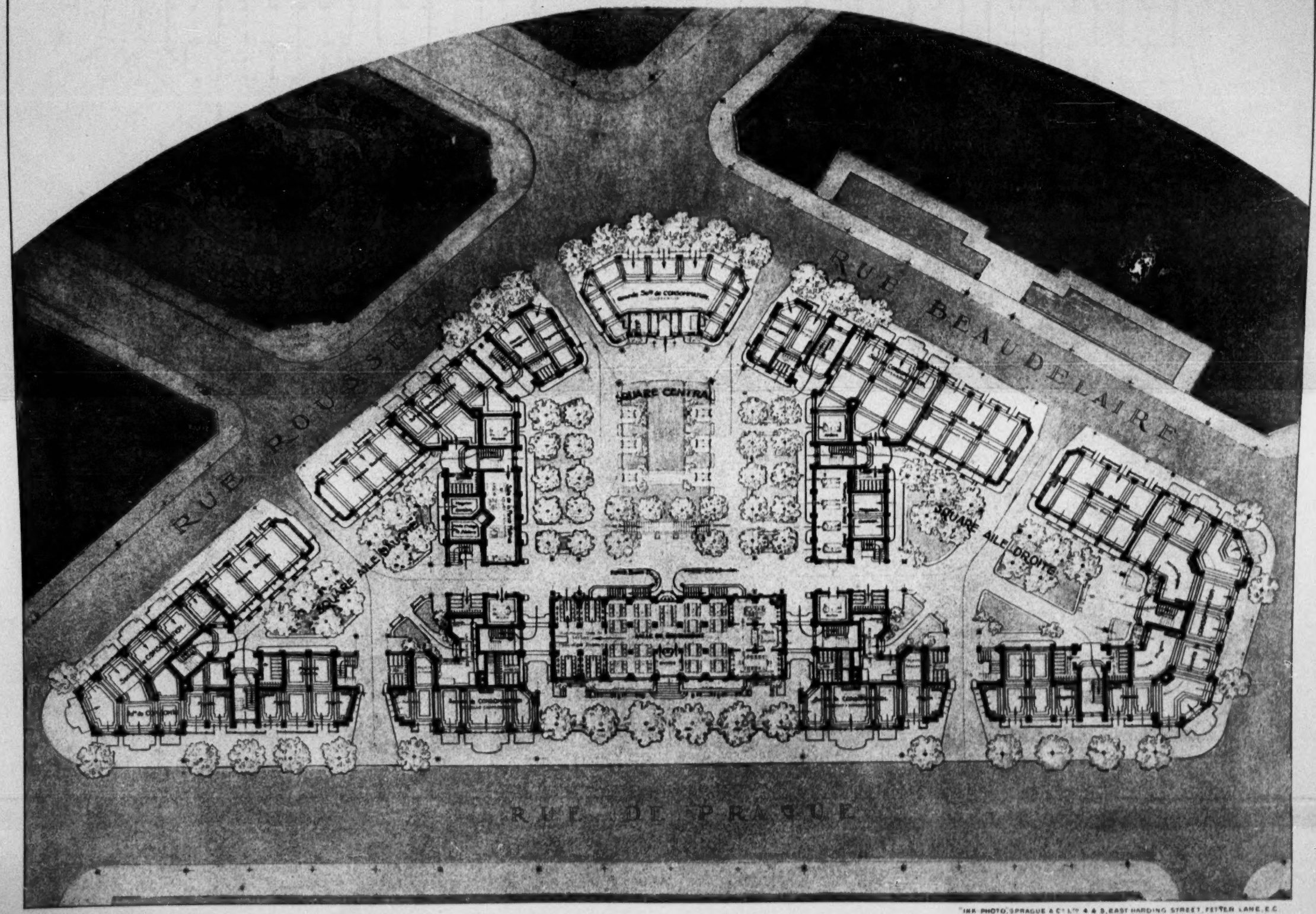
INK-PHOTO, SPRAGUE & Co. Ltd 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

FIRST PREMIATED DESIGN FOR ARTISANS' DWELLINGS, PARIS (FONDATION ROTHSCHILD COMPETITION).

By M. Adolphe A. Rey.

VIEW OF ONE OF THE PAVILIONS.


TERRASSE
TERRASSE
TERRASSE
TERRASSE



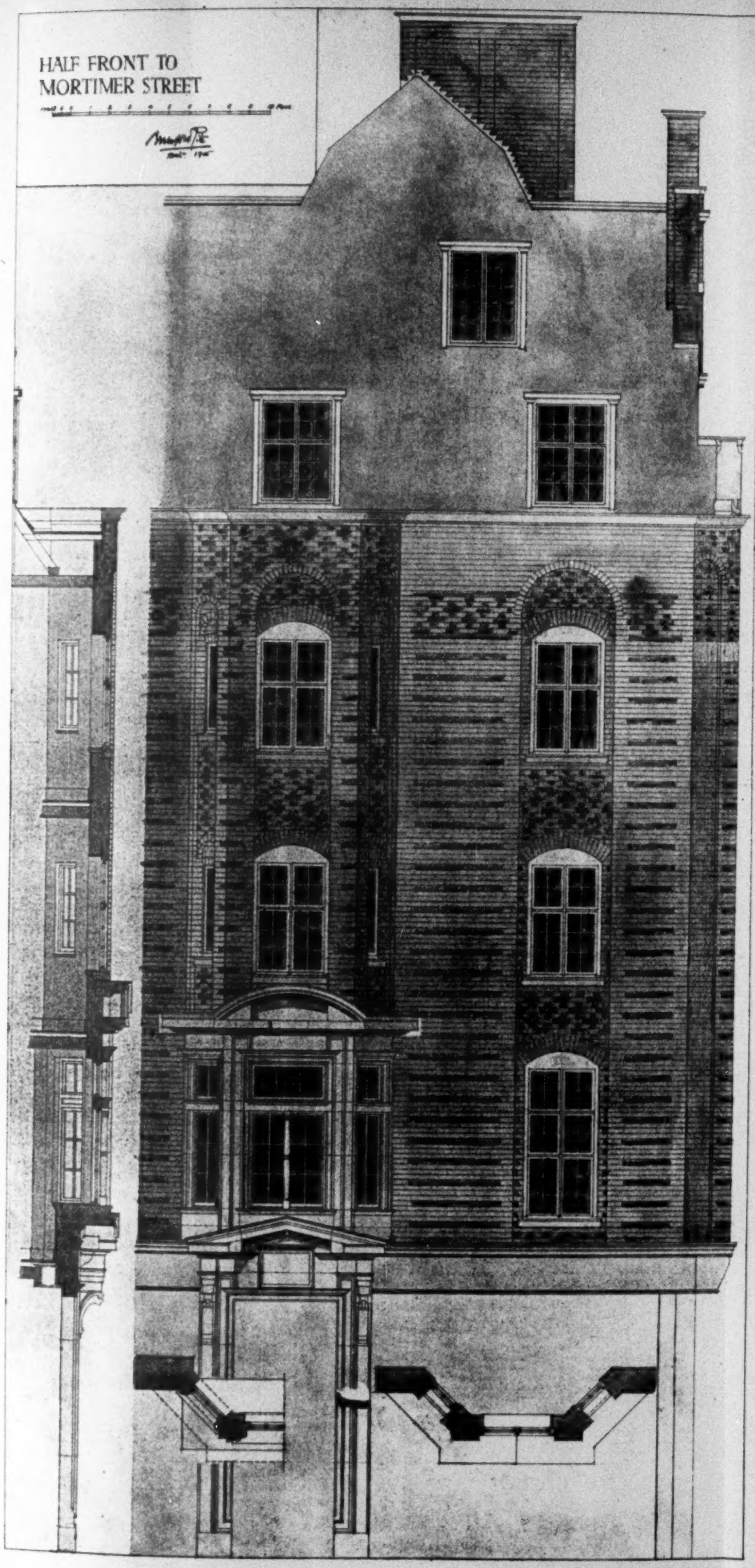
INK PHOTO, SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

FIRST PREMIATED DESIGN FOR ARTISANS' DWELLINGS, PARIS (FONDATION ROTHSCHILD COMPETITION).

By M. Adolphe A. Rey.

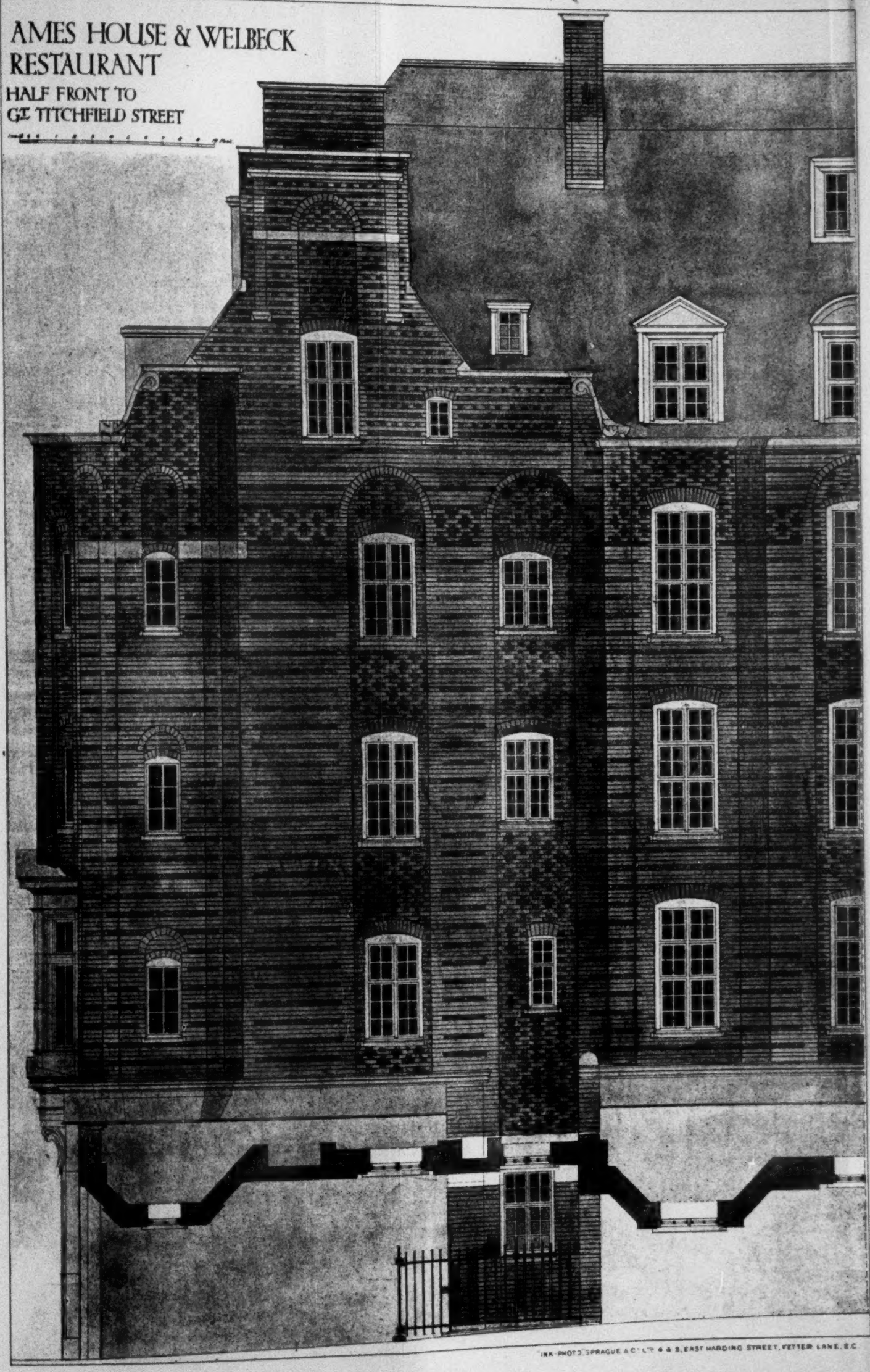
PLANS OF GROUND FLOOR AND ONE OF THE UPPER FLOORS.

HALF FRONT TO
MORTIMER STREET



AMES HOUSE & WELBECK RESTAURANT

HALF FRONT TO
GT TITCHFIELD STREET

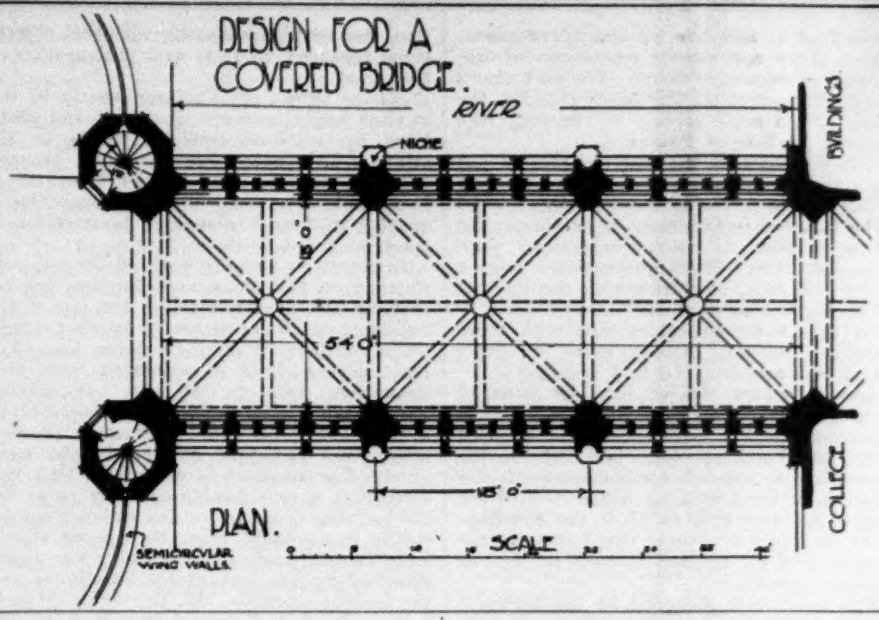


INK-PHOTO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

Fifty Years Ago.

A REVIEW OF THE POSITION.

MR. RUSKIN had not favoured them lately with anything architectural. The piazza of St. Mark had been abandoned for Trafalgar-square; and they had been rather startled to hear that Mr. Maclise not only paints badly, but that he does it on purpose. He believed that he was justified in saying that they would shortly see a building in the north of England erected from Mr. Ruskin's designs, with the constructive assistance of an architect. He (the chairman), for one, was delighted to hear it. They were rather tired of his singular recipes, and were anxious to see the pudding itself. Let them wish it every success, and may it be as rich and juicy as the mind that made it. But if it should turn out a failure, if it should prove flat, crude, and indigestible, then, by every architectural stomach in the kingdom, they would not spare him. The excuse about the Edinburgh windows, "that he did not care to perpetuate them," would not avail him now. They were much in want of new books, treatises, or other information on new modes of construction. They had recently adopted so many new applications of material, that the old and valuable treatises on the strength of materials were not enough. The results of a series of well-conducted experiments on bent timber and laminated ribs would be of incalculable value, and they were strangely deficient, even now, in proper information with regard to boiler plate girders. If it were not presumptuous, he would there make a humble suggestion to a senior society. It was no secret that the Royal Institute of British Architects intended shortly to remove to other premises. It would be a great boon to the profession generally if these premises should contain a yard or other open space fitted up with an hydraulic press and other apparatus, where architects would find facilities for making experiments on building materials. The only place where an architect could prosecute such researches was a builder's yard, and the builder was just the man to whom the architect did not wish to be under obligation. As the report had told them, they were about to memoralise their seniors to set on foot a public architectural examination and an honorary diploma. It might perhaps be thought somewhat presumptuous in a junior society to take the first step in such a matter; but that was surely a mistaken view of the case. The institution of a public architectural examination must be the work of the old and experienced, but it was no less the duty of the student strongly to insist on its necessity. He knew well that in these days of free trade it would be idle to insist upon that examination being a compulsory one, nor was that necessary. To say that no man could give an opinion as to the safety of a parapet, or the construction of a chimney-pot, without having passed an examination, would be manifestly absurd, and he had often heard this kind of argument used against examinations altogether. Let the examination only be a good one, and a stiff one—let the "pluckings" be tolerably numerous, and he was sure that there would be no necessity for a penal law to create candidates.—Report of Architectural Association meeting, *The Builder*, October 13, 1855.



Illustrations.

DESIGN FOR A COVERED BRIDGE.

THIS design is modelled on a famous bridge at Cambridge, and was meant to occupy a position under somewhat similar conditions.

The materials intended were stone, with stone vault ribs and brick filling, and a timber roof, lead covered. One end of the bridge abuts against the college buildings, and the other is flanked by large octagonal turrets, finished with ornamental roofs.

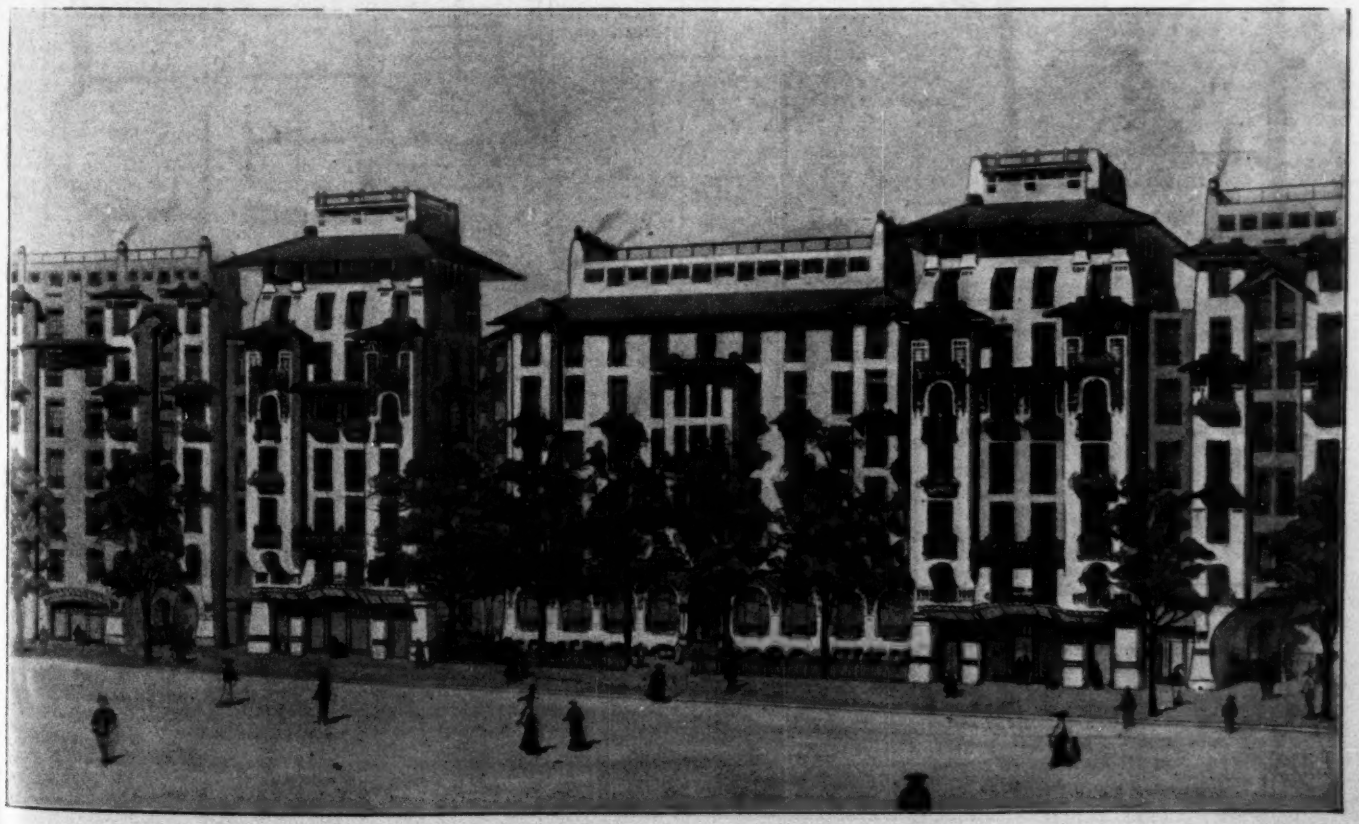
The large traceried windows were intended to be left open, and the small buttresses subdividing them run up through the pierced parapet and carry small figures.

The main buttresses are ornamented with niches and figures, and finish above the parapet with traceried heads.

ROBERT ATKINSON.

DESIGN FOR ARTISANS' DWELLINGS, PARIS.

WE have referred briefly, in former issues, to the two successive exhibitions of competition drawings for the best plans for artisans' dwellings which have been held in Paris, and which were promoted by the "Fondation Rothschild," a company, as we understand, founded for the purpose of initiating a new movement in the provision of well-planned model dwellings to be erected in Paris. We are now enabled to give, through the courtesy of the architect, M. Adolphe A. Rey, some illustrations of his design which obtained the first premium in the competition. We give a plate showing one of the main pavilions to a pretty large scale, and a reproduction of the



First Premiated Design for Artisans' Dwellings, Paris (Fondation Rothschild Competition). *By M. Adolphe A. Rey.*

ground plan and one of the upper plans, which latter are mainly repetitions of one scheme on successive floors. We give also a small illustration on the page, showing the effect of the main portion of the long face towards the Rue de Prague.

The Fondation Rothschild was started not more than a year ago, and one of its first efforts was to arrive at the creation of types to be followed in this class of buildings; for which purpose its two competitions were organised. The first competition was a sketch one only, and from this the authors of twenty-five of the sets were selected to enter into a second competition with more detailed drawings. Among these M. Rey's design was awarded the first premium.

As will be seen, the buildings are arranged so as to leave three open courts planted with trees, one in the centre and one at each side. The buildings were laid out on the plan after a careful consideration of the direction of the prevailing winds, and of the best angles at which to place the buildings so as to secure a natural ventilation by the movement of the air, and to have no close or stagnant corners.

The stairs were regarded by the architect as very important agents in assisting ventilation, and are planned partly with that object; being regarded, in fact, as a prolongation of the street.

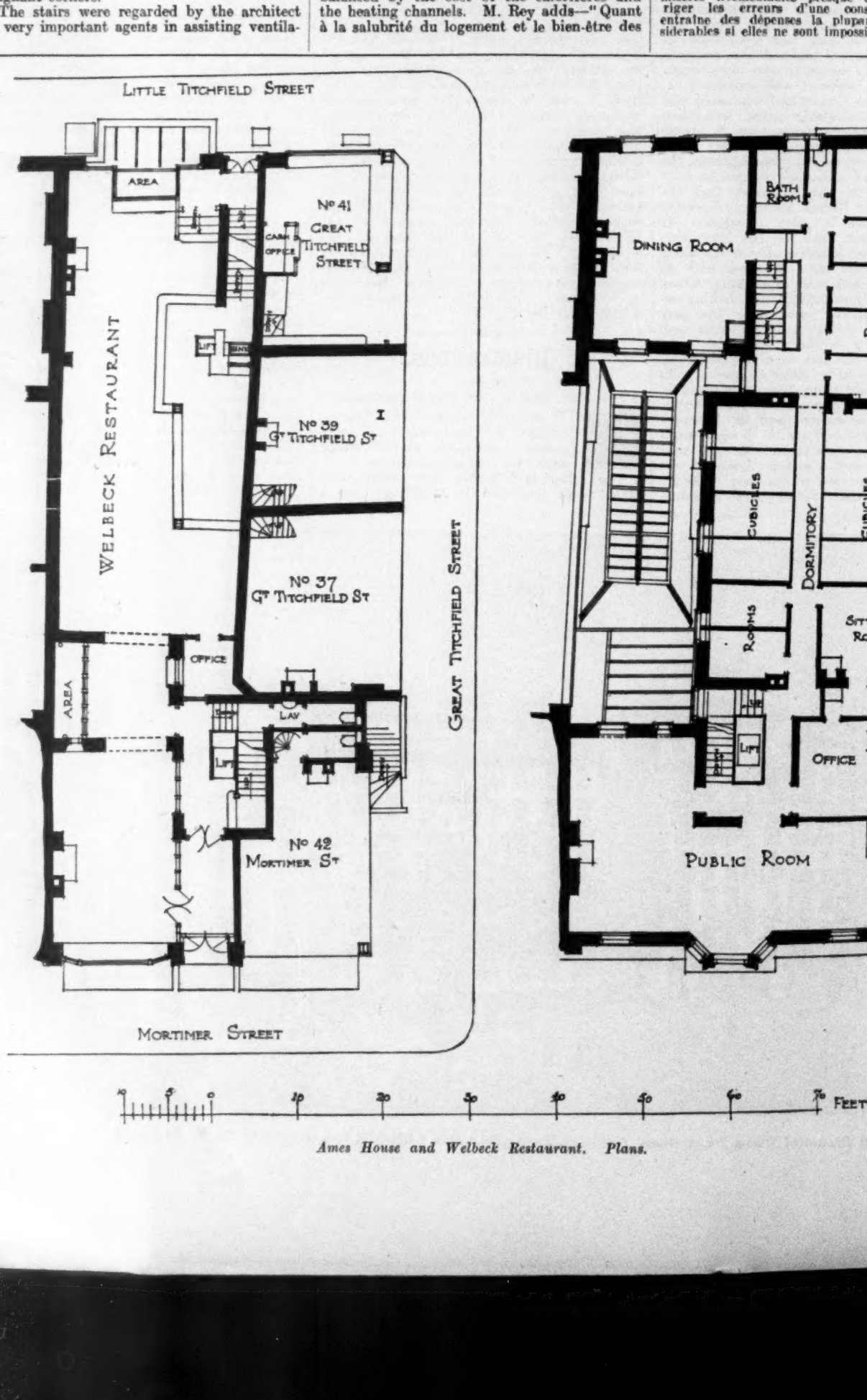
All the stories are 3 mètres (nearly 10 ft.) in clear height, and are all lighted and ventilated by windows reaching nearly to the ceiling. The water-closets are all grouped with an entrance open to the outer air—a commonplace in England, but apparently a novelty in French planning, as attention is specially called to it.

In regard to laundry work M. Rey objects strongly to the practice of forming general washing and drying-rooms at the top of the building, which are generally, he says, places where confusion reigns. He gives, instead, a little drying closet in connexion with each habitation, open to the air, but covered against rain. Each habitation is warmed by a "canalisation centrale" of warmed air, supplied from radiators situated in the basement. The architect is of opinion that this method is a considerable economy in saving the building of chimneys and chimney-stacks, which is no doubt true, though we should have thought most of this economy was nearly balanced by the cost of the calorifères and the heating channels. M. Rey adds—"Quant à la salubrité du logement et le bien-être des locataires, la système du chauffage central present des advantages incontestables." It does away, no doubt, with the trouble of coal and coaling, and with one source of dirt, but we doubt if one would persuade English tenants to prefer it. In France it may be different.

M. Rey has no doubt gone into the subject in the proper spirit, as may be seen in the following sentence from the Report sent with his drawings:—

"En voyant à combien de questions un architecte doit de nos jours répondre, il y a des transformations profondes à faire dans son éducation. L'architecte, pour étudier la question du logement du travailleur dans les moindres détails doit se faire humble—devenir petit—ne se rebuter de rien—ne pas rechercher à faire valoir uniquement ses qualités d'artiste en belles facades—en ordonnances architecturales monumentales qui n'ont rien à faire ici—car en définitive est-ce une facade que nous habitons? est-ce un extérieur monumental qui doit être la préoccupation devant laquelle doit céder avant tout les lignes d'un plan?

S'identifier avec les ouvriers c'est nécessaire pour comprendre le foyer que réclame l'ouvrier. Toute étude, de même des plus infimes détails, est nécessaire. Sait-on ce que l'abandon de ces recherches sur les sujets les plus humbles de l'habitation infligera plus tard de misères à l'habitant, misères irrémédiables presque toujours car corriger les erreurs d'une construction terminée entraîne des dépenses la plupart du temps considerables si elles ne sont impossibles à faire."



Ames House and Welbeck Restaurant. Plans.

We regret that we were unable to give M. Rey's plans to a larger scale and in a clearer kind of impression. They are drawn in the manner usual in France, with a certain amount of shading and "effect," which looks very well on the original plan, but is not at all favourable to a clear reproduction, especially on a necessarily reduced scale. A plan in plain lines and with the sectional portions in black would, of course, have come out much more clearly. The views of the building reproduce well enough, and we think the architect has contrived to produce a kind of architectural treatment which is pleasing and picturesque, without being costly.

AMES HOUSE, MORTIMER-STREET, W.

THESE illustrations are from a drawing which was hung in the Royal Academy Exhibition of this year, and are the detailed elevations of a residential block erected by Mr. Alfred Ames for the Young Women's Christian Association. The building has accommodation for over 100 residents, and a large restaurant on the ground floor. The remainder of the ground floor in Mortimer-street and Great Titchfield-street is appropriated for shops, the rents of which endow the institution.

The builder was Mr. A. A. Webber, of Mortimer-street. The constructional steel work and fireproof floors are by Messrs. Lindsay, Neale, & Co. The cost of the building has been about 11,000*l*. The architect is Professor Beresford Pite.

THE LONDON COUNTY COUNCIL.

THE first meeting of the London County Council after the summer recess was held on Tuesday in the County Hall, Spring-gardens, Mr. E. A. Cornwall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Battersea Borough Council 8,500*l*. for museum, gymnasium, and baths; Bermondsey Borough Council 2,000*l*. for providing a public library; Camberwell Borough Council 3,000*l*. for contribution to cost of street improvement, 2,903*l*. for paving works, and 10,000*l*. for contribution to purchase of public park; Greenwich Borough Council 7,289*l*. for paving works; Hackney Borough Council 3,245*l*. for paving works; Hackney Guardians 6,000*l*. for poor law purposes; Islington Borough Council (sanction to borrowing) 13,000*l*. for electric lighting; Lewisham Borough Council 3,096*l*. for pipe sewer works; Poplar Borough Council 15,312*l*. for paving works; Poplar Guardians 4,440*l*. for poor law purposes; Wandsworth Borough Council 11,400*l*. for street widenings; and Woolwich Borough Council 10,223*l*. for electric lighting purposes.

School, Wandsworth.—The following recommendations of the Education Committee were agreed to:—

"(*a*) That the estimate of 22,333*l*. submitted by the Finance Committee in respect of the erection of a school to provide accommodation for 840 children on the Sellincourt-road site (Wandsworth) be approved.

(*b*) That expenditure on capital account not exceeding 23,204*l*. be sanctioned in respect of the erection of a school on the Sellincourt-road site (Wandsworth); that the erection of the building be carried out without the intervention of a contractor; and that the drawings, specification, quantities, and estimate of 21,200*l*. be referred to the Works Committee for the purpose."

Elevations of Buildings.—The Improvements Committee reported as follows:—

"In accordance with the authority granted by the Council on August 1, 1905, we have approved drawings of the undermentioned buildings proposed to be erected on the Council's surplus land:—

Building proposed to be erected by Mr. F. Priddis on land in York-road and Lombard-road, Battersea.

Three shops proposed to be erected by Mr. C. S. Merrett on land in Tooting High-street.

Building to be erected by Mr. W. Fitches on lot 11, Goldsmith's-row, Shoreditch."

Municipal Concert Halls.—Mr. Verney moved "that in view of the decision of the Council of February 14, 1905, against the scheme for utilising the island site in Aldwych for a place of amusement, and of the resolution of the Council of May 16, 1899, in favour of granting a site for a municipal opera house, it be referred to the Theatres and Music Halls Committee to consider and report upon the whole subject of the Council providing for the benefit of the public a hall for music, dramatic representation, and recreation, including particulars as to the probable success, financial and otherwise, of such an undertaking, and the general conditions under which it should be managed, and empowering the Committee to seek such assistance for their inquiry as may be placed at their disposal by eminent members in the professions." Since St. James's Hall had been demolished there was scarcely any hall in London for holding concerts, such as most provincial towns and almost every Continental town possessed. He recognised the fact that to ask the London County Council to support an opera house would be too much at the present time, but he believed that a concert hall, properly built, with good acoustic qualities, and in a convenient place—not necessarily the site suggested by him—would be almost certain to pay its way, and would do much to make the lives of the people happier and to increase the forces of civilisation.

Mr. Albert Smith, in seconding the motion, pointed out that the proposal was merely one for an inquiry, and was not of a mandatory character.

Mr. Howell Williams and Lieut.-Colonel Rotton opposed the proposal, on the ground of the existing enormous commitments of the Council.

On a show of hands, seven councillors voted for the motion, which was defeated by a large majority.

Unemployed Problem.—Mr. Warren moved that with a view of providing work during the winter for the large number of unemployed workmen in London, the several committees of the Council be instructed to commence and carry on as much work as possible, and to employ on such work only such persons as shall have been resident in the County of London for not less than twelve months immediately preceding their application for employment.

Mr. McKinnon Wood pointed out that the General Purposes Committee had already issued a memorandum to the spending committees to the effect that they should proceed with necessary work as soon as possible, and therefore the motion was unnecessary, and also introduced some undesirable controversial matter.

Mr. Thomas thought the committees might put in hand some building works already authorised, and thus provide work for about 2,000 men during the winter.

Mr. W. W. Bruce moved an amendment to delete all words after the word "possible" in the motion.

On a vote the amendment was defeated.

Mr. Sidney Webb then moved that the Council proceed with the next business.

This was carried, and the motion therefore also fell through.

The Council then adjourned.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage.

Lewisham.—That the application of Mr. W. J. Stephens for an extension of the periods within which the erection of a building on a site abutting upon the east side of High-street and north side of Limes-grove, Lewisham, was required to be commenced and completed, be granted.—Consent.

Lewisham.—Twelve houses on the north side of Longhurst-road, Hither-green, Lewisham (Messrs. W. Goddard & Co. for Mr. C. E. Beaumont).—Consent.

St. Pancras, South.—That the application of Mr. W. Flockhart for an extension of the period within which the construction of underground cellarage in the forecourts of Nos. 15, 17, 19, and 21, Euston-road, St. Pancras, was required to be commenced, be granted.—Consent.

Hampstead.—An oreil window and architectural projections at Nos. 156, 158, and 160, High-road, Kilburn (Mr. G. A. Sexton for Mr. B. B. Evans).—Consent.

Hackney, South.—A porch to a house in course of erection on the western side of Wattisfield-road, Hackney, to abut upon Cotesbach-road (Messrs. Deakin & Cameron for Mr. S. Franklin).—Consent.

Kensington, South.†—The retention of a projecting sign at No. 11, Young-street, Kensington (Messrs. Harrods, Limited, for Mr. H. B. Fitzherbert).—Consent.

Marylebone, East.—That the application of Mr. F. M. Elgood for Mr. J. A. Michell, for an extension of the period within which the erection of buildings on the western side of Albert-road, Regent's-park, at the corner of High-street, on the site of Portland-terrace, St. Marylebone, was required to be completed, be granted.—Consent.

Marylebone, West.†—A projecting clock at the first floor level of No. 61, George-street, St. Marylebone (Mr. H. Cousens).—Consent.

Paddington, North.—A porch and bay windows in front of "Maida-vale Mansions," Ashworth-road, Paddington (Mr. E. E. Davies for the Maida-vale Mansions, Limited).—Consent.

St. George, Hanover-square.—The retention of a projecting balcony and entrance porch at Symond's Hotel, No. 34, Brook-street, St. George, Hanover-square (Mr. J. E. Trollope for the Symond's Hotel Company).—Consent.

Hampstead.—An addition on the eastern side of St. Saviour's Church, Eton-road, Hampstead (Messrs. Carõe & Passmore).—Consent.

Wandsworth.†—Two houses on the north side of Hazlewell-road, Putney, to abut upon Serpent-street and Champion-street (Mr. J. C. Radford for Mr. J. Coleman).—Consent.

Hackney, North.—The retention of an addition to a portico at No. 118, Stamford-hill, Hackney (Mr. C. Cheston).—Consent.

Islington, North.—One-story shops upon part of the forecourts of Nos. 549, 551, 553, and 555, Holloway-road, Islington (Mr. H. N. Smith for Mr. B. Blaiberg).—Consent.

Kensington, South.—Bay windows and an open porch at No. 57, Campden House-road, Kensington (Mr. J. W. Simpson for Col. H. H. Roberts).—Consent.

Lewisham.—Two projecting porches at Nos. 7 and 8, Radford-road, Hither-green, Lewisham (Messrs. Thomas & Edge for Mr. H. W. Budd).—Consent.

Marylebone, East.—A projecting balcony at "Harley-house" (Blocks Nos. 5 and 6), Marylebone-road, St. Marylebone (Messrs. Boehmer & Gibbs for Mr. C. J. Hinsley).—Consent.

Marylebone, East.—An iron and glass hood over the entrance to No. 40A, Devonshire-street, St. Marylebone (Messrs. Maple & Co., Limited, for Mr. Friswell).—Consent.

Marylebone, East.—A bay window at "Carlyle Lodge," Avenue-road, St. Marylebone (Mr. A. F. Faulkner for Mr. W. Willett).—Consent.

Marylebone, West.—A porch at "Loudoun Mansions," Marlborough-road, St. Marylebone (Mr. P. Hoffmann for Mr. W. H. Dunn).—Consent.

Peckham.—A stable building at the rear of No. 54, Shard's-road, Peckham, to abut upon Meeting House-lane (Mr. F. W. Smith).—Consent.

Southwark, West.—The reconstruction and extension of an iron and stone balcony at the first floor of No. 81, Blackfriars-road, Southwark (The Fireproof Co., Limited, for Mrs. Sandys).—Consent.

Strand.—A shop front at No. 119, Pall Mall (Mr. J. A. Minty for Messrs. Hugh Rees, Limited).—Consent.

Woolwich.—Buildings on the eastern side of Wood-street and western side of Lower Wood-street (Mr. F. C. Henesy).—Consent.

Brixton.—A one-story shop upon part of the forecourt of No. 87, Bedford-road, Clapham (Messrs. Price, Arrow, & Taylor for the County of London Estates Co.).—Refused.

Kensington, South.†—Erection of a bay window at No. 27, Camden-hill-square, Kensington (Mr. F. Warman for Mr. E. H. Hodgkinson).—Refused.

Peckham.—Buildings with one-story shops in front upon the site of Nos. 176 and 178, Rye-lane, Peckham (Mr. A. E. Mullins for the trustees of the late G. T. Congreve).—Refused.

Woolwich.—An iron and glass shelter at the Grand Theatre, Wellington-street and Lower Market-street, Woolwich (Mr. B. Crewe for Mr. C. Sounes).—Refused.

Marylebone, East.—A building on a site situated between Nos. 11 and 13, Portland-place, St. Marylebone (Messrs. Buckland & Garrard for the Right Hon. Earl Temple).—Refused.

Hackney, Central.—A building on the east side of Ardleigh-road, Hackney, southward of No. 14 (Mr. J. H. Storrar for Mr. J. Sleap).—Refused.

Hammersmith.—A building on the west side of Eynham-road, to abut upon Shinfield-street, Wood-lane, Hammersmith (Mr. G. O. Rassen).—Refused.

Hammersmith.—A one-story shop on the forecourt of No. 60, Rylett-road, Hammersmith (Mr. A. Dawkins for Mr. S. Fortescue).—Refused.

Hammersmith.—A building upon a site abutting upon the southern side of Dalgarno-gardens and the western side of Bracewell-road, Hammersmith (Mr. A. Dawkins for Mr. P. Tinckham).—Refused.

Hampstead.†—A bay window at No. 3, Wedderburn-road, Hampstead (Mr. V. H. King for Mr. F. E. F. Barham).—Refused.

Kennington.—Buildings on the eastern side of Montford-place, Upper Kennington-lane, Kennington (Mr. A. W. Tribe for Messrs. Hayward Brothers, Limited).—Refused.

Kensington, South.—A covered way to a building between Nos. 7 and 11, Addison-road, Kensington (Messrs. G. Trollope & Sons, and Colls & Sons, Limited, for Mr. E. R. Debenham).—Refused.

Kensington, South.†—The retention of a boundary wall in front of No. 35, Holland-street, Kensington, next No. 33 (Messrs. Chesterton & Sons for Messrs. C. A. Daw & Son).—Refused.

Marylebone, East.—The erection of a projecting balcony at No. 80, Portland-place, St. Marylebone (Messrs. Boehmer & Gibbs for Messrs. Matthews, Rogers, & Co.).—Refused.

Wandsworth.—A one-story addition adjoining No. 54, High-street, Tooting (Mr. S. S. Dottridge for Mr. E. Dottridge).—Refused.

Westminster.—One-story shops in front of Nos. 79 to 95 (odd numbers only) inclusive, Victoria-street, Westminster (Messrs. Griffin & Woollard for Mr. H. Webley).—Refused.

Lines of Frontage and Construction.

Hackney, North.—The retention of a wood and iron structure upon part of the forecourt of No. 19, Filey-avenue, Upper Clapton (Messrs. H. Pumfrey & Son for Mr. G. Kemp).—Consent.

Hampstead.—The retention of a wood and iron building at No. 1, Bolton-road, Hampstead, abutting upon Greville-place (Mr. A. H. D. Nonweiler).—Consent.

Islington, West.—An iron ash hopper on the west side of Burnard-place, Islington (Mr. A. Gay for the Council of the Metropolitan Borough of Islington).—Consent.

Fulham.†—Permission to retain a motor house at the rear of No. 219, New King's-road, Fulham, abutting upon Coniger-road (Messrs. R. Iles for Dr. Ayre).—Refused.

Lines of Frontage and Space at Rear.

Kensington, North.—Dwellings on the south side of Kenley-street, Notting-hill, to the line, and with open spaces about such buildings (Mr. W. C. Leete for the Council of the Royal Borough of Kensington).—Consent.

Battersea.†—Buildings on a site abutting upon the north side of York-road and east side of Lombard-road, Battersea (Mr. Cannell for Mr. F. Priddis).—Consent.

Width of Way.

Rotherhithe.†—A one-story building at Dinorwic Wharf, Rotherhithe-street, Rotherhithe, with a forecourt boundary at less than the prescribed distance from the centre of the roadway of the street (Mr. A. H. Lainson for Mr. J. J. Greenwood).—Consent.

Poplar.—Two rows of water-closet buildings on the east side of Hale-street, Poplar, with external walls and forecourt boundaries at less than the prescribed distance from the centre of the roadway of the street (Mr. H. Heckford for the Council of the Metropolitan Borough of Poplar).—Consent.

Paddington, South.—A one-story building at the rear of No. 28, St. Petersburg-place, Paddington, with external walls at less than the prescribed distance from the centre of the roadway of St. Petersburg-mews (Mr. T. H. Smith for Mr. F. Lenders).—Refused.

Wandsworth.—Three houses on a site abutting upon the northern side of Warple-way and western side of Warple-road, Wandsworth, with external walls and forecourt boundaries at less than the prescribed distance from the centres of the roadways of those streets (Mr. F. Dolley).—Refused.

Brixton.—Three houses on the eastern side of Dolland-street, Lambeth, with external walls and forecourt boundaries at less than the prescribed distance from the centre of the roadway of the street (Mr. R. A. Swingler for Messrs. C. Blyton & Sons).—Refused.

Greenwich.—Forecourt boundaries in front of Nos. 6, 7, 8, and 9, and Nos. 16 and 17, Queen-street, East Greenwich, at less than the prescribed distance from the centre of the roadway of the street (Messrs. Meakin & Archer for the Very Rev. F. Henry, the Rev. C. Aherne and the Rev. J. Sala, of St. Joseph College, Mill-hill).—Refused.

Lines of Frontage and Width of Way.

Lambeth, North.—A building on the southern side of York-street, York-road, Lambeth (Mr. E. B. Lamb for Messrs. McGaw & Co.).—Consent.

Marylebone, East.—The rebuilding of the porch, with conservatory over, at No. 22, Sussex-place, Regent's-park, St. Marylebone, with external walls at less than the prescribed distance from the centre of the roadway of Sussex-place (Mr. J. Emblin-Walker for Mr. H. D. Ripley).—Consent.

St. Pancras, South.—A one-story shop at No. 138, Cleveland-street, St. Pancras, with external walls at less than the prescribed distance from the centre of the roadway of the street (Mr. C. Harris).—Refused.

Space at Rear.

Dulwich.—A modification of the provisions of section 41 of the Act with regard to open spaces about buildings, so far as relates to the erection of a building on the north-western side of Calton-road, Dulwich, between No. 17 and "Holmwood," with an irregular open space at the rear (Mr. A. E. Mullins for Mr. J. H. Cooper).—Consent.

Formation of Street and Line of Frontage.

Wandsworth.—That an order issued to Mr. A. Wellings, sanctioning the formation or laying out of new streets for carriage traffic on a site abutting upon the east side of Trinity-road and the south side of Upper Tooting-park, Wandsworth, and in connexion therewith the erection of buildings upon such site.—Consent.

Formation of Streets.

Wandsworth.—That an order be issued to Mr. A. Wellings sanctioning the formation or laying out of new streets for carriage traffic to lead from Tooting Bec-road to Upper Tooting-road.—Consent

Dulwich.—That an order be issued to Mr. A. E. Mullins, sanctioning the formation or laying out of a new street for carriage traffic to lead from Relf-road to Troy Town, Peckham (Mr. J. Frampton).—Consent.

Greenwich.—That the Council do make no order upon the application of Messrs. Cronk, on behalf of Mr. H. G. Williams, for consent to the erection of a cottage on the west side of a road leading out of the south side of Shooter's-hill-road, Greenwich.—Agreed.

Lewisham.—That an order be issued to Mr. T. H. Burroughes, sanctioning the formation or laying out of new streets for carriage traffic to lead southward from Kanleybridge-road, Lewisham (Mr. A. Cator).—Consent.

Wandsworth.—That an order be issued to Messrs. Lee & Pain-Clark, sanctioning the formation or laying out of new streets for carriage traffic out of the east side of Erpingham-road and north side of Clarendon-road, Putney (for Mr. R. J. Pettiward).—Consent.

Means of Escape at Top of High Buildings.

Strand.—Means of escape in case of fire, proposed to be provided on the eighth (top), seventh, and sixth stories of a building on the western side of Kingsway (Messrs. Cubitt, Nichols, Sons, & Chuter for Messrs. W. H. Smith & Son).—Consent.

Westminster.—A deviation from the plans approved in respect of the means of escape in case of fire proposed to be provided in pursuance of section 63 of the Act, on the seventh (top), sixth, and fifth stories of a block of office buildings on the north side of Tothill-street, Westminster, eastward of the Imperial Theatre (Mr. J. S. Gibson for Messrs. Holloway Brothers, (London), Limited).—Consent.

City of London.—Means of escape in case of fire proposed to be provided in pursuance of section 63 of the Act, on the sixth (top) story of No. 16, Cornhill, for the persons dwelling or employed therein (Mr. H. L. Anderson for the Mutual Life Assurance Company of New York).—Consent.

Marylebone, East.—Means of escape in case of fire proposed to be provided on the fifth (top) story of blocks 5 and 6, Harley-house, Marylebone-road, St. Marylebone (Messrs. Boehmer & Gibbs for Mr. C. J. Hinsley).—Consent.

Cubical Extent.

Woolwich.—The erection at Henley-road, North Woolwich, of two buildings to exceed in extent 250,000, but not 450,000 cubic ft., and to be used only for the purposes of the manufacture of electric cables, switch-boards, and telephone instruments (Messrs. Ardron & Dawson for the Western Electric Company).—Consent.

Fulham.—That the consent be not given to the erection at Farm-lane, Walham-green, Fulham, of a building to exceed in extent 250,000 cubic ft., and to be used as a shed for motor omnibuses (Messrs. Gilbert & Constanduros for the London and District Motor Bus Company, Limited).—Refused.

Buildings for the Supply of Electricity.

Westminster.—That the Council do consent to the application of Mr. C. S. Peach for permission to retain for a further period the temporary iron chimney shaft at the electricity generating-station, Millbank-street, Westminster.—Consent.

Space at Rear and Height of Buildings.

Kensington, North.—A building on a site abutting upon the eastern and southern sides of Blechynden-mews, Blechynden-street, Kensington (Mr. W. J. Wadman for the Committee of the Fawcett Liberal Club).—Consent.

Working-class Dwellings.

Lewisham.—Dwelling-houses to be inhabited by persons of the working-class, and proposed to be erected on a site at the rear of houses in Lea hurst-road and Longhurst-road, Lewisham (Mr. E. H. Harrison for Mr. J. Johnson).—Refused.

Alterations to Building.

Southwark, West.—A deviation from the plans approved in respect of the reconversion into a dwelling-house of No. 21, St. George's-road, Southwark (Mr. R. F. Bacon for Messrs. Gillman & Spencer).—Consent.

St. George, Hanover-square.—Residential flats on the site of Gloucester House to abut upon Piccadilly and Park-lane, St. George, Hanover-square (Messrs. Collcutt & Hamp for Mr. J. J. Dureen).—Refused.

The recommendations marked † are contrary to the views of the local authority.

COMPETITIONS.

CENTRAL LIBRARY FOR ST. PANCRAS.—The Public Libraries Committee of St. Pancras reported on Tuesday that they would obtain vacant possession on Lady Day of the site in Prince of Wales's-road, by Anglers'-lane, on which the Central Public Library is to be erected. They had considered whether it would be advisable to invite by public advertisement competitive designs offering premiums for those which may be placed first, second, or third in order of merit by a professional assessor, or whether it would be better to ask the President of the Royal Institute of British Architects to nominate six gentlemen who, in his opinion, would be best qualified to compete. They had decided in favour of the latter course, and had resolved (subject to the usual sanction) to ask the President of the Royal Institute of British Architects to nominate six gentlemen who, in his opinion, would be best qualified to prepare designs, also to ask him if he would act as assessor, and place the designs submitted in order of merit, and, if so, upon what terms. The Committee had further resolved that an honorarium of 40 guineas be given to each of the five unsuccessful competitors. The same Committee reported that steps were being taken for the acquisition of sites in Chester-road, Euston-road, Camden Town, and Gospel Oak for the erection of branch libraries.

FREE LIBRARY BUILDINGS AT WEST BROMWICH.—The West Bromwich Free Library Committee met on the 9th inst. to consider the competitive plans for the new free library buildings which are to be erected at a cost of 7,500*l.* There were altogether twenty-seven sets of plans sent in, and the following awards were made:—First, 50*l.* (which is to be merged into the commission), Mr. S. J. Holliday (West Bromwich); second, 30*l.*, Mr. A. G. Latham (Birmingham); third, 20*l.*, Messrs. Crouch, Butler, & Savage (Birmingham).

BOOKS RECEIVED.

SOUTHWARK: THE CATHEDRAL AND SEE. By George Worley. (Geo. Bell & Sons.)

CASSELL'S BUILDING CONSTRUCTION. By Professor Henry Adams, M.Inst.C.E. Part I. (Cassell & Co. 3d. per Part.)

PRACTICAL TRIGONOMETRY, for the use of Engineers, Architects and Surveyors. By Henry Adams, M.Inst.C.E. Second Edition. (Whitaker & Co. 2s. 6d.)

SUBURBAN HOUSES: A SERIES OF PRACTICAL PLANS. By J. Herbert Pearson, architect. (E. & F. N. Spon. 7s. 6d.)

Correspondence.

SCALE IN BOILERS.

SIR,—May I ask through your columns whether any of your readers can throw any fresh light upon the household boiler trouble? In towns where the water is hard it would be a great boon to have some means for the prevention of the scale in the boiler.

"CAMBRIDGE."

*** In the case of existing boilers, we do not believe there is any remedy but periodical cleaning of the boiler. It is important to see that the flow pipe, where it leaves the boiler, is kept well away from the fire, or it may get stopped up while the boiler itself is still efficient. The more heat, the more rapid is the deposit; and of course a pipe is much sooner choked than a boiler. In fitting in new boiler and range apparatus, the best method of preventing deposits in domestic boilers is to heat the water which is drawn off at the taps *indirectly*, by means of a coil in the cylinder. The usual course is to heat the water *directly in the boiler*, with the result that nearly every drop of water which is drawn off at the taps is first circulated through the boiler where it deposits a small amount of scale. It is the accumulation of these small amounts which causes the trouble complained of. In the indirect method of heating, the water which is heated in the boiler circulates through a coil in the cylinder and has no connexion whatever with the hot-water service-pipes. As the water in the boiler is not drawn off, the amount of the deposit is inappreciable. The service-pipes form

a secondary circulation from the body of the cylinder (not from the coil), and, as the temperature of the water is not as high as in the boiler, the amount of the deposit is less. Deposits will, of course, occur in the cylinder, but are not as objectionable there as in the boiler. We may have more to say on the subject.—ED.

AYLESBURY ELEMENTARY SCHOOLS COMPETITION.

SIR,—As one of the competitors in the above competition promoted by the Bucks County Council in February last, I was considerably interested in the list of tenders published in your recent issue for the erection of the buildings from the accepted design.

Those of your readers who were unfortunate enough to be participators in this competition will remember that the accommodation to be provided was for 750 scholars at a maximum expenditure of 10*l.* per head, together with an allowance of 400*l.* for a cookery school—or a total allowance of 7,900*l.*; a clause in the conditions provided that if the lowest tender exceeded the estimate by more than 5 per cent. the promoters reserved the right of rejecting the plans. Now, if we turn to the tenders actually received we find the lowest to be 9,200*l.*, or an excess over the estimate of about 16½ per cent., and this tender is marked "provisionally accepted."

It was, of course, obvious to every competitor of experience in this class of work that it was impossible to carry out the buildings according to the conditions for the sum allowed, and there were two courses open—one, to comply with the building requirements and fake the estimate; the other, to keep within the estimate and point out that departure from the conditions would be necessary, not as regards accommodation but as regards construction. I do not complain that the allowance of 10*l.* per head was inefficient, for I know from a considerable experience that a perfectly satisfactory school can be built for that sum, but I also know that it is necessary to observe very strict rules of economy, and that orthodox methods as practised in London are out of the question.

Now, who is to blame for the obviously unfair result of the competition? Certainly no one but the assessor. The promoters of the competition did all that was necessary; they went to the R.I.B.A., asked for an assessor, and accepted his decision; and it is most disappointing to find the appointment of an assessor by the R.I.B.A. followed by an obviously unjust decision.

The moral seems to be that assessors should be appointed for their special knowledge of the subject in question, and not because it happens to be their "turn."

A.R.I.B.A. AND A COMPETITOR.

HOVE PUBLIC LIBRARY COMPETITION.

SIR,—The award of the assessor in this competition has been most disappointing. Surely amongst all the designs sent in there must have been some good ones. It is possible, of course, that every one of them may in some small particular have failed to conform with the conditions, but that is just as likely to have been a fault of the conditions or site as of the designs.

The withholding of the premiums is a great slight upon the architects who competed, and is very vexatious, especially when we remember that assessors, even one so gifted and respected as Mr. Belcher, are after all but human, and that there is undoubtedly room for difference of opinion in regard to vital questions of library planning.

Surely the course which has been adopted is one which should not be taken up without some more adequate explanation than has been offered; and I think the competitors, as well as architects generally, would welcome a public statement by Mr. Belcher giving the reasons which compelled him to take this very extreme view of the case.

A COMPETITOR.

SIR,—I herewith enclose for publication copy of letter received from the Town Clerk of Hove and the award of the assessor, and which I feel sure the competitors will regret as much as the committee. Such an award condemning the whole of the designs of eighty architects has never before been recorded, and I trust that the committee will take a charitable view of the circumstances which must have been the cause of such an award, and that they will not take it seriously.

A COMPETITOR.

LONDON BUILDING ACTS AMENDMENT BILL.

SIR,—On page 345 of your issue of the 30th ultimo I notice a number of suggested amendments, and I should like to suggest that the borough surveyor should have carefully studied the 1894, 1898, and 1905 Acts before writing so much about nothing. The larger portion of the matters described are dealt with in these Acts. Others would not meet with the approval of the public.

It is quite possible that the proposed Bill may not be introduced at all, as the legislation this year has not been successful.

OBSERVER.

DISTRICT SURVEYORS' FEES.

SIR,—I suggest to your correspondent "C. J. S." that 7*l.* was the proper fee under the Act, but in all cases the district surveyors accept a nominal fee when a very small work is executed in a large building (see amount of abatements in the Returns of District Surveyors published by the London County Council). It is possible that other work was done to the building, otherwise a nominal fee or none at all should have been charged.

Can any of your readers give me any information about London district surveyors prior to 1845? I have complete notes since that date. Also I am very anxious to have proof that the late C. J. Matthews, the eminent comedian and husband of Mme. Vestris, was a district surveyor of either South Islington or Stoke Newington.

HENRY LOVEGROVE,
Hon. Sec. District Surveyors' Association.

TENDERS FOR RUSSIAN RESTAURANT, STRAND.

SIR,—In your issue of the 7th inst., under the list of tenders, you state in the third column, on page 377, that the electric lighting order has been placed with A. Collins, A.M.I.C.E., at 180*l.*, for Romano's, Ltd. This statement is quite incorrect, and is liable to cause me some considerable inconvenience, as I am not a contractor but a consulting engineer, and the amount mentioned, namely 180*l.*, is the sum that I mentioned in the report would be necessary to be expended on the work.

ADRIAN COLLINS.

*** The mistake is not ours; we printed the list of tenders as sent to us.—ED.

PICTURES AND DECORATION.

SIR,—In thanking you for your kindly reference (page 340 *ante*) to my paper read before the Master House Painters and Decorators at Plymouth, I can in no way take exception to your concluding remarks, with which I, of course, agree, but I would like to point out that the entire address has not yet been printed, therefore you have not had an opportunity of seeing the following paragraph:—

"I have spoken so severely of a most exalted calling—the noble, educational, and soul-inspiring art of painting—because that art has lost something of its greatness and purpose by its exponents ignoring decoration and decorative claims, and therefore neglecting the decorative instruction which should also be a part of every painter's training.

It is because the mere picture painter arrogates to himself the position due to those vested with genius, and ignores the claims of men of *genius* in other directions, that my complaint is just—viz., the placing of pictorial art upon a ridiculous pedestal."

I give way to no man in love and veneration for the fine arts of painting and sculpture, but is my love and admiration to justify me in being insensible to the claims for recognition of the applied arts of architecture and decoration, which are after all more essential to the comfort of humanity if appealing less to the imagination? If any excuse is necessary, only extravagant comparisons can at the present day draw attention to abuses. This comes hard upon one who holds the view that such comparisons should be needless.

GEO. C. HAITÉ.

*** Our point was that the highest achievements of pictorial art represent a higher order of genius, and have a higher intellectual interest, than anything that can be done in decorative art. Decorative design is relative, it has reference to its surroundings, and it cannot express the highest order of ideas. Pictorial art at its highest has the quality of original poetry; it stands alone and on its own basis, and represents intellectual effort in a sense in which decorative art cannot.—ED.

CENTRAL HALL, NEWPORT.—The foundation-stones have been laid of a central hall for the Newport Forward Movement. It will be situate in Commercial-street and will accommodate over 2,000 people. The design is Gothic, and the architects are Messrs. Habershon & Faulkner, of Cardiff and Newport.

PUBLIC LIBRARY, SOUTHEND.—Two improvements at Southend-on-Sea were inaugurated on Monday last week, the first being the laying of the foundation-stone of a public library, and the other the official opening of the Chalkwell Esplanade. The public library was the outcome of a gift of 8,000*l.* from Mr. A. Carnegie, and the Corporation provided a site on the east side of Victoria-avenue, which will ultimately be close to the municipal buildings. The structure, of which the builders are Messrs. F. and E. Davey, was designed by Mr. H. T. Hare, the architect. The reference library will afford space for fifty readers, and the stock room for 20,000 reference books. The building will be fireproof throughout.

The Student's Column.

STEAM BOILERS AND PIPES.—XV.

CHIMNEYS (*continued*).

FROM the preceding articles it is evident that, other things being equal, the theoretical velocity of draught in a chimney depends entirely upon the height of the chimney. The practical velocity also depends upon the height of a chimney, although in point of fact the actual rate of speed is affected by the internal area and the general proportions of the chimney and its connected flues. Therefore, while the interior area of a chimney is in no way connected with the origin of draught power, it has an important bearing upon the actual velocity of draught and upon the capacity of a chimney to carry away the required volume of gases.

Output, or Capacity.—Velocity of draught and internal area must be considered together, for the carrying capacity of a chimney is governed by both factors, and for a given discharge of gases the required area of a chimney is inversely proportional to the actual velocity of the draught, and, conversely, the required velocity is inversely proportional to the area of a chimney.

It follows, then, that if the height of the chimney be comparatively great the area may be comparatively small, and if the area be comparatively great the height may be comparatively small.

Therefore by increasing the height it is possible to minimise the transverse dimensions of a chimney, and so to secure the required discharge by increased velocity. Apart from the expense involved by lofty building construction, and the proportionately heavy increase of friction with increased velocity, the attempt to augment the output in this way is impracticable beyond reasonable limits, for the reason that the velocity of the air and gases is not proportionate to the height, but to the square root of the height.

Tables XXI., XXII., and XXIII. show that by doubling the height of a chimney the velocity is only increased in the ratio of $\sqrt{1} : \sqrt{2}$, and by quadrupling the height of the chimney, the velocity is only increased in the ratio $\sqrt{1} : \sqrt{4}$.

As an illustration, let us suppose that 64 cubic ft. of gases have to be discharged per second. If the chimney were 50 ft. high the actual velocity by Table XXIII., column 8, would be 16 ft. per second, so the required area would be 4 sq. ft. By making the height 100 ft. the velocity would be 22·6 ft. per second, and the area of the chimney need only be 2·83 sq. ft.; and by making the height 200 ft., with a velocity of 32 ft. per second, the area need not be more than 2 sq. ft.

It does not require much consideration to see that the small reduction of area could not possibly compensate for the cost of the greatly increased height. In actual practice the reduction of area would be still less, owing to the necessity of providing for the rapid increase of friction with the increased velocity of the gases, or, expressed in other words, for the purpose of minimising the reduction of velocity by the increase of friction. Another practical consideration is that a given thickness of soot has a far greater effect in reducing the available area of a small chimney than that of a larger chimney.

The aspect of the case presented above is made very clear by calculating the loss of head corresponding with the heights and areas stated, the square root of each area being taken to represent the side of a square chimney.

Formula (3), p. 301, may be inverted for the purpose of obtaining comparative results. Thus using v_s to denote actual velocity, and H in place of l, we have

$$h = \frac{v_s^2 H}{(48)^2 d}$$

Then the losses of head are:—
For the 50-ft. chimney

$$h = \frac{(16)^2 \times 50}{2304 \times \sqrt{4}} = 2{\cdot}7 \text{ ft.}$$

For the 100-ft. chimney

$$h = \frac{(22{\cdot}6)^2 \times 100}{2304 \times \sqrt{2{\cdot}83}} = 13{\cdot}1 \text{ ft.}$$

For the 200-ft. chimney

$$h = \frac{(32)^2 \times 200}{2304 \times \sqrt{2}} = 62{\cdot}8 \text{ ft.}$$

These figures are sufficient to show how rapidly friction and consequent loss of head increase with the velocity of the draught, and to suggest how necessary it is to consider the area of a chimney from the standpoint of friction, as well as from that of cubical capacity.

In calculating the proportions of the chimney for any given boiler installation the estimated coal consumption is the starting-point. Next it is necessary to consider the supply of air per pound of fuel, and the consequent volume of the hot gases.

The consumption of coal, of course, varies with the duty of the boiler, and ranges from 5 lb. to about 30 lb. per square foot of grate area per hour in boilers with natural draught. The air supply usually ranges from 14 lb. to 30 lb. per pound of coal, and the volume of the products of combustion in a chimney can be calculated by formula (1), p. 280, or taken from Table XIV., p. 281.

Having settled these data, the area of any chimney can be calculated if the height of the shaft or the velocity of the hot gases be known, or the height if the area be known.

The required area is obviously the quotient of the volume of the gases divided by their practical velocity of flow.

Whence

$$A = \frac{c\,q}{v_a} \quad \ldots\ldots\ldots \quad (29)$$

As by formula (28) the practical velocity of the hot gases $= 2{\cdot}26\sqrt{H}$, we have also

$$A = \frac{c\,q}{2{\cdot}26\sqrt{H}} \quad \ldots\ldots \quad (30)$$

Again, for the height we have from (28)

$$H = \left(\frac{v_a}{2{\cdot}26}\right)^2 \quad \ldots\ldots \quad (31)$$

and from (30)

$$H = \left(\frac{c\,q}{2{\cdot}26\,A}\right)^2 \quad \ldots\ldots \quad (32)$$

If the area of the chimney be already settled, we can ascertain the actual velocity required for a given output by the equation

$$v_a = \frac{c\,q}{A} \quad \ldots\ldots\ldots \quad (33)$$

Knowing the area and practical velocity, we can calculate the weight of coal that can be consumed in the boiler furnace by the equation

$$c = \frac{v_a\,A}{q} \quad \ldots\ldots\ldots \quad (34)$$

In the foregoing formulæ q and Q are in cubic feet; A is in square feet; H is in feet, measured from the fire-grate to the top of the chimney; v_a is in feet per second; and c is in pounds per second.

If the designer wishes to calculate the area with a fair approach to accuracy, the value of v_a in formula (29) should be calculated by taking into account the number of bends and other structural features in the boiler flues tending to reduce the velocity of the gases, and by taking account also of the length of the flues, the height of the chimney, and the diameter corresponding to the area of the flues and the chimney, as in example (10), p. 371.

On the other hand, if a rough approximation should be thought sufficient—and in many cases nothing more than this is necessary—formulæ (30) and (32) will give the required area and height with a minimum expenditure of time.

Formula (34) may be used in connexion with the design of projected chimneys, where all the data are hypothetical, or in computing the possible fuel consumption for existing chimneys where the velocity can be ascertained by measuring instruments, and where the air supply per pound of fuel can be determined in a similar manner.

In the following examples we have assumed the total coal consumption to be 720 lb. per hour, the air supply to be at the rate of 24 lb. per pound of coal, and the temperatures of the cold air and of the hot gases to be 62 deg. and 585 deg. F. respectively.

Hence we have $c = (720 \div 3{,}600) = 0{\cdot}2$ lb. per second. The value of q is given by formula (1), p. 280. Inserting the weight of air per cubic foot at 62 deg. from Table XVIII., p. 326, we get

$$q = (24 \div 0{\cdot}0761)\,\frac{461 + 585}{461 + 62} = 630 \text{ cubic ft.}$$

Example (11).—Find the area for the top of a chimney 100 ft. high, this height being assumed as necessary for the purpose of avoiding annoyance to the owners of adjacent property.

(*a*) Assume the values of n and $\frac{H + l}{d}$ to be as stated at the top of Column 4, Table XXIII.

Then by formula (29) we have

$$A = \frac{c\,q}{v_a} = \frac{0{\cdot}2 \times 630}{20{\cdot}6} = 6{\cdot}126 \text{ sq. ft.}$$

(*b*) Taking an average velocity as given by formula (28) and using formula (30), we have

$$A = \frac{c\,q}{2{\cdot}26\sqrt{H}} = \frac{0{\cdot}2 \times 630}{2{\cdot}26 \times 10} = 5{\cdot}574 \text{ sq. ft.}$$

Example (12).—Find the height of a chimney, supposing that it is not necessary to adopt any minimum height, the internal diameter at the top being assumed at 3 ft., with a corresponding area of 7·0686 sq. ft.—say, 7 sq. ft.

By formula (32) we get

$$H = \left(\frac{c\,q}{2{\cdot}26\,A}\right)^2 = \left(\frac{0{\cdot}2 \times 630}{2{\cdot}26 \times 7}\right)^2 = 63{\cdot}3 \text{ ft.}$$

Then the chimney is 63·3 ft. high by 3 ft. internal diameter at the top, and the correctness of these proportions may be tested by formulæ (28) and (29).

Formula (28) gives for the velocity of the hot gases

$v_a = 2{\cdot}26\sqrt{H} = 2{\cdot}26 \times 7{\cdot}96 = 18$ ft. per sec.

Substituting this value in formula (29), we get

$$A = \frac{c\,q}{v_a} = \frac{0{\cdot}2 \times 630}{18} = 7 \text{ sq. ft.}$$

In the next two examples we will alter the assumed coal consumption, the air supply per pound of fuel, and the temperature of the gases.

Example (13).—Ascertain the required velocity of the gases and the height of a chimney, with an internal area of 9 sq. ft., to provide for the consumption of 1,800 lb. of coal per hour, the air supply being 20 lb. per pound of coal, and the temperature of the gases 600 deg. F. The coal burned per second is $(1{,}800 \div 3{,}600) = 0{\cdot}5$ lb., and by Table XIV the volume of the gases at 600 deg. is 533 cubic ft.

Then by formula (33)

$$v_a = \frac{c\,q}{A} = \frac{0{\cdot}5 \times 533}{9} = 29{\cdot}61 \text{ ft. per sec.}$$

and by formula (31)

$$H = \left(\frac{v_a}{2{\cdot}26}\right)^2 = \left(\frac{29{\cdot}61}{2{\cdot}26}\right)^2 = 171{\cdot}6 \text{ ft.}$$

The same result is given by formula (32). Thus

$$H = \left(\frac{c\,q}{2{\cdot}26\,A}\right)^2 = \left(\frac{0{\cdot}5 \times 533}{2{\cdot}26 \times 9}\right)^2 = 171{\cdot}6 \text{ ft.}$$

Example (14).—Find the quantity of coal that can be consumed in the boilers connected with a chimney 200 ft. high having an internal area of 12 sq. ft., the velocity of the hot gases, at the temperature of 600 deg., being 32 ft. per second, and the air supply 22 lb. per pound of fuel. By Table XIV. the volume of the gases at 600 deg. F. = 586 cubic ft.

Substituting these values in formula (34), we have

$$c = \frac{v_a\,A}{q} = \frac{32 \times 12}{586} = 0{\cdot}655 \text{ lb. per sec.}$$

Hence the possible consumption is $(0{\cdot}655 \times 3{,}600) = 2{,}358$ lb. per hour.

For application to cases in which the temperature of the hot gases is about double that of the external air, or when the air supply is such that the volume of the hot gases is 650 cubic ft. per pound of coal, we can further simplify formulæ (29) to (34) as shown below.

Formula (29) :—

The expression $\frac{c\,q}{v_a}$ becomes $\frac{c \times 650}{3{,}600\,v_a}$,

whence

$$A = \frac{C \times 0{\cdot}18}{v_a} \quad \ldots\ldots \quad (35),$$

where C is the weight of coal per hour.

Formula (30) :—

The expression

$$A = \frac{c\,q}{2{\cdot}26\sqrt{H}} \text{ becomes } \frac{c \times 650}{2{\cdot}26\sqrt{H}} = \frac{c \times 287{\cdot}6}{\sqrt{H}}$$

Here c, as before, is the weight of coal consumed per second.

It is more convenient, however, to state the consumption in pounds per hour. Changing the symbol to C and dividing by the number of seconds in an hour, we get

$$A = \frac{C \times 0{\cdot}08}{\sqrt{H}} \quad \ldots\ldots \quad (36)$$

Formula (32) :—

The expression

$$\left(\frac{c\,q}{2{\cdot}26\,A}\right)^2 \text{ becomes } \left(\frac{c \times 650}{3{,}600 \times 2{\cdot}26\,A}\right)^2$$

and by reduction as above we have

$$H = \left(\frac{C \times 0{\cdot}08}{A}\right)^2 \quad \ldots \quad (37)$$

Formula (33) :—

The expression $\frac{c\,q}{A}$ becomes $\frac{c \times 650}{3{,}600\,A}$

and by reduction

$$v_a = \frac{C \times 0{\cdot}18}{A} \quad \ldots\ldots \quad (38)$$

Formula (34) :—

The expression $\frac{v_a\,A}{q}$ becomes $\frac{v_a\,A}{650}$,

whence

$$C = \frac{v_a\,A \times 3{,}600}{650}.$$

Substituting for v_a $(2{\cdot}26\sqrt{H})$ as given by formula (28) we have

$$C = \frac{(2{\cdot}26\sqrt{H})\,A \times 3{,}600}{650}$$

which reduces to

$$C = A\,\frac{\sqrt{H}}{0{\cdot}08} \quad \ldots\ldots \quad (39)$$

In all the above equations C represents the weight of coal per hour.

Formulæ (35) to (39) give results that are similar to most of the chimney rules published, but it is very important to remember that these and all other equations of the kind are based upon a certain set of assumed conditions which may or may not be realised in practice.

Chimney formulæ as given in ordinary books of reference are not usually accompanied by any explanation of the manner in which the equations have been derived. Consequently the equations may be quite suitable in some cases and equally unsuitable in others, and if the user is not enlightened as to their derivation he cannot judge of their applicability.

For these reasons we have been careful to state the exact basis upon which every formula is founded, and to trace, step by step, the manner in which the rules have been deduced.

COURT OF COMMON COUNCIL.

THE Lord Mayor presided over the fortnightly sitting of the Court of Common Council at the Guildhall on Thursday last week.

Motor Traffic.—Mr. Deputy Morrison called attention to the nuisance caused in the City by the heavy motor traffic, and asked if the Streets Committee would try and mitigate the nuisance.—Mr. Morten admitted that the nuisance ought to be mitigated, but doubted whether the Committee had any power to deal with it. He promised to give the matter consideration.

Corporation Property.—It was agreed to grant a building lease for eighty years at a rental per annum of 900*l.*, twelve months peppercorn, to Geo. Trollope & Sons and Colls & Sons, Ltd., of the remainder of the City's land on the south side of Store-street, Tottenham Court-road, comprising 24 and 25, Store-street, and Nos. 1 to 8, and part of No. 9, South-crescent.

New General Post-Office.—A letter was received from the Postmaster-General inviting the Lord Mayor, Sheriffs, and fifty members of the Corporation to the ceremony of laying the foundation-stone of the New General Post-Office building on the site of Christ's Hospital, on October 16, to be performed by the King.—It was agreed that a vote of fifty guineas be made for decoration in connexion with the event.

The Old Bailey Buildings.—Mr. Cooper asked who was responsible for the inscription over the portals of the new Old Bailey buildings.—Mr. Deputy Ellis said there was a little history attached to the matter. The architect sent to the office a large drawing of the inscription, the words being, "Defend the children of the poor and punish wrongdoers." It appeared that the architect met Mr. Justice Grantham, who said, "For goodness' sake do not put any Latin or Greek on that building!" Certain inscriptions were submitted to the Dean of Westminster, who chose the inscription which now appeared on the building.—Mr. Stapley moved that steps be taken to remove the inscription, and this

was seconded by Mr. Rowe, who objected to the Dean of Westminster being asked to select an inscription.—After considerable discussion an amendment was carried to the effect that the whole question of the inscription be referred to the Lands Committee.

Blackfriars Bridge.—Replying to a question as to whether the Bridge House Estates Committee would consider the question of rebuilding Blackfriars Bridge in connexion with the tramway schemes of the London County Council, Mr. W. T. Algar said the Committee were endeavouring to arrange a conference with the London County Council, and they would listen to any suggestions made.

WESTMINSTER CITY COUNCIL.

THE usual fortnightly meeting of this Council was held on Thursday last week at the City Hall, Charing Cross-road, W.C.

Paving Works.—On the recommendation of the Works Committee the Council authorised the repaving of the carriage-way of Upper Brook-street, between Park-street and Park-lane. The estimate of the City Engineer of the cost of repaving with creosoted yellow deal blocks is 425*l.* The work will be executed under the annual contract for wood-paving carriage-way repairs.

Hyde Park Corner—Diversion of Sewer.—The Works Committee reported that, in accordance with a resolution passed by the Council in April last, they had invited tenders for the diversion of the sewer at Hyde Park Corner in connexion with the construction of the underground station of the Great Northern, Piccadilly, and Brompton Railway. Three tenders had been received; that of Mr. D. R. Patterson for 287*l.* 10*s.* had been accepted, and the work was now in progress. The action of the Committee was endorsed.

Gladstone Memorial in the Strand.—The same Committee reported as follows:—

"The Council having, on July 27 last, left in the hands of our Chairman and the City Engineer the matter of the site and arrangements for the erection of the Gladstone memorial in the Strand at the western end of St. Clement Danes Church, we have to report that the statue itself is stated to be 9 ft. 6 in. high, mounted upon a pedestal 24 ft. 6 in. in height. Surrounding the pedestal, about 12 ft. from the ground will be four subsidiary bronze groups about life size. The pedestal will be of Portland stone. Application has been made for the necessary hoard licence for formation of the foundation, &c., and granted, in accordance with the plan submitted, and the site of the memorial has been set out in conjunction with the Engineer of the London County Council."

Temporary Awnings Over Footways.—After considerable discussion the Council agreed to the following recommendation of the Works Committee:—"That the Council do not permit the erection of temporary awnings over the public way without a written licence being first obtained from the Council, and that a fee of 5*s.* be charged on the issue of each licence." The matter was brought up by the Committee in July last and referred back.

Locomotives on Highways.—The same Committee reported:—

"We have received and submit a letter from the Secretary of the Local Government Board, dated August 8, enclosing copies of an order authorising, subject to certain conditions, the use on highways of locomotives, every driving wheel of which, instead of being smooth soled or shod with diagonal crossbars, shall be constructed so that its contact with the surface of the ground shall be by means of a single row of moveable feet protruding from the circumference of the wheel at equal distances."

BOARD OF EDUCATION, SOUTH KENSINGTON.

THE following is the list of candidates who were successful in the competitions for Royal Exhibitions (Art), Local Scholarships (Art), and for National Scholarships (Art) and Free Studentships (Art), in 1905.

Royal Exhibitions (Art).—P. A. Wise (Birmingham Municipal School); Emily G. A. Abraham (Bristol, Queen's-road); J. W. Baxter (Carlisle); H. R. Fraser (Edinburgh, Royal Institution); Jessie M. Lawson (Edinburgh, Royal Institution); H. H. Stansfield (Manchester Municipal School); F. N. Smith (Bridgwater); W. O. Cannell (Bournemouth, Poole Hill); T. Lewis (London, St. Marylebone); R. W. Stewart (Edinburgh, Royal Institution).

Local Scholarships (Art).—F. Tustin (Northampton); G. Goodall (Salford); F. P. Brown (Rochester); W. J. Watts (Birkenhead); Mary E. Waring (Cardiff); J. M. W. Reid (Aberdeen, Grays, S. of A.); J. Power (London, Deptford); W. Rathbone (Sunderland); V. Smith (Sheffield); S. Tushingham (Burslem); R. Gill (Bournemouth, Poole Hill); A. Ward (York, St. Leonard's); Margaret S. Dobson (Edinburgh, Royal Institution); W. S. Eggison (Birmingham Municipal School); Jeannie B. Bain (Edinburgh, Royal Institution); F. Lawson (Leeds); J. Smiley (Belfast); Beatrice M. Pritchard (London, St. Marylebone); Helen M. Smetham (Rochester); Mabel T. Eckersley (Carlisle); A. E. Rendle (Bristol, Queen's-road); Maude A. Lowndes (Nottingham); H. B. Wright (Beckenham); J. L. Robinson (Ashton-under-Lyne); G. Harrison (Leeds).

National Scholarships (Art).—F. W. Burrows, designer (London, Hammersmith); H. Müller, furniture draughtsman (Manchester Municipal School); H. R. Fraser, modeller (Edinburgh, Royal Institution); Jessie M. Lawson, sculptor (Edinburgh, Royal Institution); A. Carrick, stone carver (Edinburgh, Royal Institution); H. N. Stansfield, modeller and metal worker (Manchester Municipal School); C. Vyse, pottery modeller (Hanley) H. Whiteside, designer for stained glass and decoration (Manchester Municipal School); L. Preston, lithographic artist and designer (Leeds).

Free Studentships (Art).—R. H. Parker (Leeds); J. E. Rawson (Ashton-under-Lyne); S. E. Hewitt (Ashton-under-Lyne); J. Hunniford (Belfast); H. B. Williamson (Ashford); Beatrice M. Pritchard (London, St. Marylebone); E. W. McGowan (Belfast); Amy B. C. Dimelow (Manchester Municipal School); W. H. Megahey (Dublin); T. Lewis (London, St. Marylebone); S. Tushingham (Burslem); Margaret M. Rudge (London, Battersea); R. Gill (Bournemouth, Poole Hill); W. Washington (Ashton-under-Lyne); Jeannie B. Bain (Edinburgh, Royal Institution); Inez Topham (Bristol, Queen's-road); S. C. Rowles (London, Battersea); T. Whitehead (Halifax); Agnes I. Tarn (Hull); H. L. Oakley (Leeds); Kate Illingworth (London, Clapham).

OBITUARY.

MR. MELVIN.—The death, on September 30, is announced of Mr. John Melvin, at Claremount, Alloa, N.B., in his fifty-first year. Mr. Melvin was the senior partner of the firm of Messrs. John Melvin & Son, of Alloa, in which he succeeded to his father's practice. The chief architectural works carried out by him comprise the Clackmannan Hospital, for which he made the plans and designs ten years ago; the Infectious Diseases Hospital, Linlithgow, for which his designs were chosen in competition; the Fever Hospital at Bathgate, N.B.; and the Joint Fever Hospital on the south side of the Burgh of Linlithgow, which consists of four wards in two pavilions, and an administrative block, offices, laundry, dairy, etc., and was opened on May 12 of this year, having been erected at a total cost of about 9,000*l.*

MR. R. S. HENSHAW.—It may not be generally known that the death of Mr. R. S. Henshaw, secretary of the Builders' Accident Insurance, occurred in July last, at Margate. The deceased, who was forty-six years of age, had been connected with the builders' associations for the past twenty-three years. He was appointed secretary of the Institute of Builders in 1884, and, on the death of his father in 1893, he became secretary of the Builders' Accident Insurance, Limited, and the London Master Builders' Association. When the Workmen's Compensation Act came into force in 1898, there was a division of the staffs, and Mr. Henshaw devoted himself entirely to the duties of secretary of the Builders' Accident Insurance, Limited. Deceased, who was buried at St. Mary's, Plaistow, Kent, left a widow and three children. Mr. Henshaw was well known to a large number of our readers, and his unfailing courtesy to those with whom he had business transactions had won for him a large measure of respect and esteem, and his premature death will be regretted by many.

GENERAL BUILDING NEWS.

CHURCH RESTORATION, ARLECDON.—St. Michael's Church, Arlecdon, was recently re-opened by the Bishop of Carlisle after restoration and the addition of a new tower. The work was carried out under the supervision of Mr. J. H. Martindale, architect, Carlisle, at a cost of about 4,000*l.*

CALVINISTIC METHODIST CHURCH, GILFACH.—The foundation-stones of a new Calvinistic Methodist Church at Gilfach-Bargoed were laid on the 5th inst. The contract price is 1,891*l.* 5*s.* 5*d.*, the work being undertaken by Messrs. Williams & Sons, Bargoed, from plans prepared by Mr. William Harris, Gilfach.

JEWISH SYNAGOGUE, BRADFORD.—The foundation-stone of a new synagogue and schools for the Bradford Hebrew congregation has just been laid. The building is to occupy a site of about 600 sq. yds., with a frontage of 66 ft. to Spring Gardens, Manningham-lane. There is a fall in the street frontage of about 7 ft., and advantage is taken of this in arranging the entrances to the synagogue and the schoolroom. The synagogue is to be approached by a short flight of steps from the higher end of the site, and it will have a vestibule, with two staircases to the galleries, an emergency exit being provided at the rear. The synagogue, which is 52 ft. by 37 ft., is to provide seating accommodation on the ground floor for 250, and seats for 200 ladies in the galleries. The minister's vestry is to be at the east end of the building, with a vestry on the first floor. Under the synagogue are to be schools for boys' and girls' Hebrew classes, consisting of three rooms, two 20 ft. by 18 ft. and one 37 ft. by 19 ft., divided by movable partitions, so that when necessary they may be thrown into one room for meetings. The schools are entered direct from the street from the lower end of the site. The estimated cost of the building, including the site, is about 3,500*l.* The design is Byzantine in character, executed in local stone walling, with worked-stone dressings. The work is being carried out by J. Moulson & Sons, Ltd., from designs prepared by and under the supervision of Mr. B. S. Jacobs, of Hull, who has undertaken the duties of honorary architect.

SCHOOL OF ART, HULL.—Hull's new Municipal School of Art, situate on the Anlaby-road, the foundation-stone of which was laid in April, 1903, was opened on the 6th inst. Messrs. Lanchester & Stewart are the architects, their design having been selected in competition. Messrs. Hockney & Liggins were the contractors.

POLICE-STATION, NEWPORT.—The new police-station at Pill, Newport, was opened recently by the Mayor (Mr. R. Wilkinson). The new station has been built by Messrs. D. W. Richards, Ltd., from designs by Mr. R. H. Haynes, Borough Engineer. Exclusive of furniture, the contract price was 4,342*l.*

WORKHOUSE INFIRMARY, LEICESTER.—The new Workhouse Infirmary, North Evington, was opened recently. The site, consisting of over 62 acres of land, cost 6,920*l.*, and the whole work will involve an outlay of over 100,000*l.* The buildings consist of the official and administrative block in the centre, and standing parallel with this are four large two-story double partition blocks, two on each side, to accommodate 128 patients each. The two blocks on the left are for male patients, and those on the right for female patients. The whole of these are connected by corridors running in transverse direction to the line of the pavilion blocks. At the back of the administrative buildings are the laundry block, power-house, etc., with the water tower adjoining. The administrative structure faces south-east, with three stories in front and two behind. The front portion contains an entrance hall, committee-rooms, clerks' offices, dispensary, offices, and consulting-room and accommodation for the medical staff; and in a separate wing are the matron's apartments, sitting-rooms, and dining-rooms for the nurses, with bedrooms in the upper story for about forty-five nurses. In the back portion are the great kitchens, sculleries, larders, etc., for the cooking and other requirements of patients and staff. The stores occupy a separate department near the central kitchens. There are also a servants' hall, linen and sewing rooms, and apartments for female officers and servants. The laundry block is connected by a covered way with the main building. The water tower stands 125 ft. high. It carries at a height of 424 ft. above ordnance datum a tank having a capacity of 24,000 gallons. There is a power-house erection, with two large boilers, engine and pump room, engineers' workshops, coal stores, disinfecting station, incinerator, etc., and from this there are connexions with all the main buildings for the purpose of heating, and for supply of hot and cold water and electric services. The four ward pavilions already spoken of are each 330 ft. long, and contain bedrooms, dayrooms, nurses' duty-rooms, bathrooms, etc. The buildings will contain room for beds for 520 patients, and three additional double pavilions can be added as required, increasing the accommodation to 900 beds. There will be over 900 cubic ft. of air space to each bed. The buildings are of red brick, relieved by bands of white brick, with stone dressings to the window and door openings. The roofs are tiled and the external walls up to the plinth line are built in blue brick. The infirmary is lighted throughout by the Corporation electricity, which also drives the motors in the laundry, and gas is also installed as a stand-by for cooking. There is telephonic communication between all parts of the building. Messrs. A. Gough & Trollope were the architects, and Messrs. C. & R. Moss the contractors.

HOSPITAL PAVILION, BRADFORD WORKHOUSE.—The Bradford Board of Guardians have erected a new hospital pavilion for male patients. The pavilion has been erected from plans by Mr. Fred Holland at an estimated cost of 16,000*l.* The contractors are Messrs. John Moulson & Sons, Ltd. Messrs. E. Fearnley & Sons are the joiners; Mr. E. Townend, plumber; Messrs. A. & S. Wheater, of Leeds, plasterers; Mr. George Wilkinson, slater; and Mr. W. Townsend, painter.

LIBRARY, GRAVESEND.—A new public library has been erected at Gravesend, the architect being Mr. Edmund J. Bennett. The building has a frontage of 52 ft. 8 in. to Windmill-street, and is built of Ancaster and Portland stone with red brick courses in the first floor. It is divided into two stories, with a pedimented bay at each end carrying through the two floors, and a ground floor ornamented with four Doric three-quarter columns, dividing the centre of the lower front into three bays. The upper part is divided into an equal number of bays, with windows in stone dressings. The newsroom is 35 ft. by 24 ft., the magazine-room 22 ft. by 53 ft. and 16 ft. by 17 ft., the reference library 24 ft. 6 in. by 17 ft., and these rooms are on the ground floor, as well as the lending library, which is 31 ft. by 35 ft. On the first floor the future reference-room is found (the present reference library will later on be used as additional lending library, or for such other purpose as the Library Committee may deem advisable), 22 ft. by 24 ft. The committee-room, with a small hall, landing, and stairs, takes up the remainder of the first floor. The partition walls can be removed, and the committee-room and the small hall thrown into the reference-room. The fireproof floors and stores are by Stuart's

Granolithic Co., Ltd., Millwall. The floors in terazzo are the work of Messrs. Tramontini, of Southend. The news stands and tables are manufactured by the North of England School Furnishing Co. The bookcases, chairs, etc., are by Messrs. Wenham & Hunter, of Gravesend. The hot-water work and the constructional iron work are by Messrs. Fowle Bros., Gravesend. The tiling to the walls is by Messrs. Van Straaten, of Little Britain, E.C. Mr. Nelson Dawson is responsible for the wrought iron work. Mr. Hibbert Binney is the sculptor, from whose models the whole of the carving has been executed. The lighting of the building has been carried out by Mr. Blandford, to the specification of Mr. C. F. McInnes, the Borough Electrical Engineer, who has supervised the work. The basement is given up to a book store for 5,000 volumes, a coal store and heating chamber, with sink and a geyser for cleaning purposes. The contract for the whole of the works was placed in the hands of Mr. Albert Edward Tong. Messrs. Swift Bros. were the masons.

WORKMEN'S HALL, STRATFORD.—The new Workmen's Hall and Club Rooms in the Romford-road, Stratford, were opened recently. The building was erected from plans prepared by Messrs. E. M. Thomas & Co., under the supervision of Mr. G. F. Taylor, in conjunction with Mr. W. H. Winder. It is of steel construction, with fireproof floors, roofs, etc., carried out by Messrs. G. Aston & Sons. The artificial stone used and the mosaic paving in the entrance-hall was supplied by Messrs. Phillips & Co., and the heating arrangements were entrusted to Messrs. C. P. Kinnell & Co. The builders were Messrs. Gregar & Son, of Stratford, whose clerk of works was Mr. J. Grover.

SANITARY AND ENGINEERING NEWS.

LEEDS WATERWORKS.—The Leeds City Council have been engaged on a scheme for the construction of several new reservoirs, involving an aggregate expenditure of between two and three millions sterling, in the course of some ten or twelve years. The formation of the Colsterdale reservoir is now in hand, and a waterworks engineer to superintend the works was recently appointed at a salary of 1,000*l.* per annum. Some serious defects in regard to the scheme were, however, reported by Mr. J. H. Armitage, the Chairman of the Waterworks Committee, at a recent meeting of the City Council. He stated that in twenty-nine contract drawings he had discovered 300 mistakes, 255 of which were of a serious character, and would mean a loss of several thousands of pounds. One result of these mistakes was that it was found that no less than fifty additional acres of land would be required satisfactorily to carry out the work. That meant the corporation would either have to go to Parliament for a new Act or would have to sign a treaty with Lord Masham. The Corporation, as a result, had to pay Lord Masham 50*l.* per acre more for the fifty additional acres that were required than had been paid for the other land, the price of which had been fixed by arbitration. By the changes effected, the Committee had been able to save 40,000*l.* in the construction of a bywash. The tunnel which brought the water through the embankment had curves and tangents that were wrong, and the tunnel itself did not meet. The drains would not carry the water away. The bridge at the head of the reservoir terminated 4 ft. above the level of the ground, so that any cart coming over the bridge would have that distance to fall or climb; while another bridge that was to cost 800*l.* was left out of the plans altogether. The original estimate was 300,000*l.*, and there would be an extra cost of 227,000*l.* on the trench alone. In consequence of these and other defects the works were for a time not being proceeded with. The statements of the Chairman were in a measure corroborated by the newly-appointed engineer having declared, according to Mr. Armitage, that he would accept no responsibility in any shape or form if the embankment and trench were to be constructed in the manner proposed. The result of expert evidence, Mr. Armitage said, had been one of the most shocking exposures revealed in connexion with the work of any city. The minutes of the committee on the subject were adopted.—*Times.*

BRIDGE, MAR LODGE, N.B.—The new Victoria Bridge across the Dee at Mar Lodge, erected by the Duke of Fife, was opened by His Majesty the King recently. The bridge is in three spans, with two piers, of granite, in the river. The structure has been built to the design, and under the superintendence, of Mr. P. M. Barnett, C.E. The foundations and mason work of the piers and the tar macadam of the roadway have been done by Mr. George Hall, builder, Aberdeen; and the steel work by Messrs. James Abernethy & Co., Aberdeen.

WATERWORKS, EAST STIRLINGSHIRE.—The formal opening of the East Stirlingshire Waterworks, which have been constructed by the Eastern District Committee of the Stirling County Council, took place at Buckie Burn Reservoir on the 5th inst. The works, which were begun on August 3, 1901, have been carried out under seventeen separate contracts, and have cost about 112,000*l.*, exclusive of land and servitudes, surface damages, Parliamentary expenses, etc. Mr. James Watson, C.E., of Bradford, was the consulting engineer, and the whole of the works were designed and carried out under the supervision of Messrs. Warren & Stuart, C.E., Glasgow. The sources of supply which have been drawn upon are the Buckie Burn, a tributary of the river Carron, and three tributary streams on the lands of Muirhead and Craigengelt in St. Ninians parish. The storage reservoir, which is on the line of the Wee Buckie Burn, has a capacity of about 156,000,000 gallons. The total supply available from the new reservoir is estimated at 1,450,000 gallons per day, but of this compensation water, equal to 483,000 gallons per day, has to be given off to the stream, leaving a net supply for the district of 966,700 gallons per day. Powers have, however, been acquired for the construction of a second reservoir at some future time lower down on the line of the main stream, which will provide the whole of the compensation water, and leave for the service of the district the whole available supply from the Buckie Burn reservoir, namely, 1,450,000 gallons per day. An initial installation of four filters, with a filtering area of 756 sq. yds., has been constructed to begin with, and the clear-water tank, which has a capacity of 546,000 gallons, is so arranged that it can be duplicated. The pipe system of the district is a very extensive one, covering the greater part of five parishes, extending in all to about 80 miles, and with a range of elevation from 10 ft. to 700 ft. above ordnance datum. From the service tank the trunk main passes through the parishes of Denny, Falkirk, and Slamannan to two service reservoirs, one at Greyrigg, with a capacity of 825,000 gallons, and the other at Limerigg, south of Slamannan, with a capacity of 181,000 gallons. From the main pipes and these two service reservoirs distributing pipes are led throughout the limits of supply from Greenhill and Bonnybridge on the west, to Linlithgow Bridge, Polmont, and Muiravonside on the east, and from Grangemouth on the north to Avonbridge, Slamannan, and Limerigg on the south;—*Glasgow Evening Times.*

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. F. M. Simpson, architect, has removed from 137, Gower-street, to 88, Gower-street, W.C.——Mr. Joseph Francis, for many years engineer to the New River Company, since the transfer of the undertakings of the company to the Metropolitan Water Board, has removed to offices at 28, Victoria-street, S.W., where he will carry on his practice in future.——The Fireproof Partition and Spandrel Wall Co. have appointed Mr. J. James, of 166, Stapleton-road, Bristol, as their agent for Somersetshire and Gloucestershire.

APPOINTMENT.—The Board of the Builders' Accident Insurance, Limited, have unanimously appointed Mr. C. M. Brown, who has been assistant secretary since 1900, to the position of secretary occupied by the late Mr. Henshaw.

APPOINTMENT OF SANITARY OFFICERS.—The Local Government Board has sanctioned the appointment of the undermentioned persons as sanitary inspectors in the metropolitan boroughs as follows:—Hackney, Mr. W. C. Vobe, as from July 25, 1905; Islington, Miss J. J. Brown (in the place of Miss J. M. S. Gray, resigned), as from September 1, 1905; City of Westminster, Miss A. M. Dick (in the place of Miss C. W. Byrne, resigned), as from September 4, 1905.

SALFORD HOUSING SCHEME.—The housing scheme of the Salford Corporation on the Sleaford-road site has now been practically completed. To provide dwellings for people unhoused owing to the demolition of insanitary property the Corporation have erected 228 dwelling-houses and three shops, which have quickly become tenanted. The net cost of the work, including an estimate of 747*l.* for the paving of Gerald-road, when that thoroughfare is widened, will be about 44,059*l.* 18*s.* 1*d.*, as against 47,737*l.*, the amount sanctioned by the Local Government Board.

PROPOSED MUNICIPAL BUILDINGS FOR BOURNEMOUTH.—The Bournemouth Town Council had before it, on the 3rd inst., a proposal to adopt a scheme to erect a town hall and Municipal buildings, at an estimated cost of 126,000*l.* At the Municipal Buildings Committee, on September 15, the joint report of Messrs. F. W. Lacey and C. E. Mallows, architects, was read, submitting for the Council's consideration alternative plans for Municipal buildings, as follows:—Scheme A.—Municipal offices, Council chamber, sessions and police courts, police department, Mayor's rooms (including reception-room), and small town hall capable of seating about 700 to 800. Estimated to cost for Municipal buildings, 78,500*l.*; extra for town hall, 18,500*l.*: total, 97,000*l.* Scheme B.—Similar accommodation to above, without a town hall, but with a free library and art gallery (the internal arrangements varying as necessary). Estimated to cost for Municipal buildings, 78,500*l.*; extra for free library and art gallery, 23,000*l.*: total, 101,500*l.* Scheme C.—Similar accommodation to above, without free library and art gallery, but with a large hall capable of seating about 2,500, pursuant to instructions with all suitable ante-rooms. Estimated to cost for Municipal buildings, 78,500*l.*; for town hall and adjuncts, 69,000*l.*: total, 147,500*l.* Mr. Lacey pointed out to the Committee that it was impossible to adopt scheme C. without acquiring considerably more land than had been purchased, but that if the Council desired a larger hall than shown in plan A., this might be managed to the extent of seating provision for 1,500 persons by omitting the free library and art gallery from plan B, and substituting the town hall. The Committee resolved that Mr. Lacey be instructed to prepare a plan on the lines generally of scheme B., but substituting for the library and art gallery a town hall capable of seating 1,500 persons, and that such scheme be recommended to the Council for adoption. It was decided that detailed descriptions of the schemes and lithographed plans should be sent to each member of the Council, while all plans and reports be placed in the large Committee-room for inspection. Consideration of the details and questions of arrangement of the offices were left over till the Council had adopted the scheme. At a subsequent meeting of the Committee, Mr. Lacey submitted plans for scheme D. in accordance with directions given at the previous meeting, with detailed report and estimate of cost. The Committee approved, and recommended:—"That the scheme D. for Municipal buildings and town hall now submitted, be adopted by the Council, the estimated cost being as follows: For the Municipal buildings, 78,500*l.*; for the town hall and adjuncts, 47,500*l.*: total, 126,000*l.* That the necessary plans and particulars, and estimate of cost for submission to the Local Government Board, be prepared, and that the requisite borrowing powers be applied for pursuant to Section 11 of the Bournemouth Corporation Act, 1897."—*Bournemouth Daily Echo.*

THE ROYAL COMMISSION ON MOTOR-CARS.—Among those who have been invited to give evidence before the Royal Commission, which is to begin its sittings on the 16th inst., is the Highways Protection League, who are now collecting evidence as to the interference with the rights of the public at large in the free use of the highways, and the danger and inconvenience to persons and injury to property caused by motor traffic as at present conducted. The League will be glad to hear from any persons interested in the subject who can speak of these matters from personal experience—especially with regard to country roads; and those who are willing to be witnesses are invited to state shortly the gist of the evidence they would be prepared to give. Communications may be addressed to W. L. L. Bell, Esq., Secretary of the Highways Protection League, 4, Harcourt-buildings, Temple, E.C.

RURAL BUILDING BY-LAWS.—A recently issued return shows that in 246 rural districts in England and Wales—out of a total of 668—there are no by-laws for the regulation of new buildings, and that throughout 169 districts and in parts of 114 there are by-laws based on the urban model. It further shows that throughout 106 districts and in parts of thirty-two there are by-laws in force based on the rural model, and that throughout eleven districts and in parts of six the by-laws in force are not based on the model series, but were mostly made before the first issue of the model in 1877. In certain instances series of diverse character are in force in different parts of the same district.—*Morning Post.*

DISCOVERY AT DURHAM CATHEDRAL.—The workmen engaged in excavation on the north-west front of Durham Cathedral, where a memorial is to be erected to the officers and men who fell in the South African War, have discovered at a depth of 10 ft. a number of interment cells. The cells are constructed of large slabs of stone, and several contained the skeletons of persons of good stature. The age of the remains is difficult to judge, but the interments were probably antecedent to the year 1200 A.D. The remains will be reinterred in another portion of the Cathedral graveyard.—*Sheffield Telegraph.*

INSTITUTE OF CERTIFIED CARPENTERS.—Mr. Henry Adams, the late professor of engineering at the City of London College, read a paper before the British Institute of Certified Carpenters at Carpenters' Hall, on the 7th inst., entitled, "Timber and Brains." Disavowing any suggestion of identity of material, he explained that it was the intelligent use of timber that he wished to bring before them. He then described the timbers that could be used in wet foundations, and gave examples of durability, followed by those that would best resist a damp situation, and then mentioned examples and exhibited specimens of durability in works above

ground. The timbers best suited for marine work and for use in hot countries, to resist the attacks of worms and insects, were also mentioned. The nature of the grain of various woods, as affecting their use, was then referred to and many examples given. The characteristics of good timber were described, the chief defects named, and the modes of preservation briefly noticed. The mode of shrinkage and the alteration of shape produced during seasoning were explained, and how advantage might be taken of this knowledge. Finally, the principles of stress and strain, and the designing of beams, were described, and some useful rules given.

ANCIENT WOODEN CONDUIT, HOLBORN.—In the course of excavating a cross trench in connexion with the work of the electrification of the tram-lines in Theobald's-road, the workmen cut across an ancient wooden water conduit, in excellent preservation. Immediately opposite No. 26, Theobald's-road, a length of about a dozen feet of the conduit has been removed.

BRADFORD BUILDING REGULATIONS AND GARDEN CITY HOUSES.—The desirability or otherwise of obtaining an alteration in the Bradford building regulations such as would allow of the erection of houses somewhat on garden city lines has recently been discussed by the Street Improvement and Buildings Committee of the Bradford Corporation. The idea was to erect houses which should have a long strip of garden in front, with a good portion of the main avenues devoted to grass and with substantial back streets for vehicular traffic. This scheme, the Town Clerk (Mr. F. Stevens) has advised, cannot be carried out under the existing building regulations. It was pointed out, however, at the meeting on the 4th inst. of the Committee that plans could be passed which provided for the erection of semi-detached houses with a roadway twelve yards wide and a building line of garden space of five yards. These semi-detached houses could be put up, it was explained, without a back street. One of the aims of the scheme put forward was to effect a saving in street expenses, but the alternative proposals introduced do not offer anything in this direction, because what economies were effected in street expenses would be swallowed up in the extra gable ends of the dwellings. However, the Buildings Committee decided that no steps should be taken to obtain an alteration in the building regulations.

INTERNATIONAL EXHIBITION, MILAN, 1906.—The first Italian International and Universal Exhibition will be opened in Milan on April 15 next. This exhibition will be on a large scale, and the contents will be divided into nine international and one national section, as follows:—1. Land transportation, aeronautics, meteorology; 2. Sea and river transportation (including ship's models); 3. Social economy; 4. Manufacturing and decorative arts; 5. Miscellaneous industries (machinery in motion); 6. Retrospective transportation exhibit; 7. Fisheries and pisciculture; 8. Agriculture; 9. Hygiene; 10. Fine arts (national). A British Commission has been formed, and Government has made a grant of 10,000*l.* for the creation of a British section. In spite of the shortness of time at its disposal, the Commission has been fortunate enough to secure in the various buildings space which, both in regard to area and position, will place this country on an equality with the various other foreign nations who will participate. The importance of this country taking a prominent part in the exhibition will be evident to all those manufacturers who have watched with concern the gradual decrease of their trade relations with Italy and the corresponding growth of German and French imports. Detailed information regarding the exhibition may be obtained by application at the offices of the British Commission, London Chamber of Commerce, 1 and 2, Oxford-court, Cannon-street, London, E.C.

WAR MEMORIAL, EDINBURGH.—A memorial erected in St. Giles' Cathedral, Edinburgh, to the officers and men of the Queen's Own Cameron Highlanders who fell in the South African War was unveiled on the 7th inst. by Lieutenant-General Sir Ian Hamilton. The memorial, which takes the form of a mural monument placed upon the west wall of the Cathedral, is of dove-grey marble in the style of the Scottish Renaissance, and was designed by Mr. W. S. Black, Edinburgh.

MEMORIAL TO DEAN HOLE.—A stained glass window was recently unveiled at Caunton Church, Newark, to the memory of the late Dean Hole, of Rochester. The window contains three lights, and was designed and executed by Messrs. Percy Bacon & Brothers, of London and Edinburgh.

NEW BUILDING FOR GLASGOW TECHNICAL COLLEGE.—The annual report of the Glasgow and West of Scotland Technical College states that efforts have been made during the year to complete the first section of the new building in time for the coming session, and credit is due to the several contractors for their endeavours to meet the wishes of the Governors. The building is probably the largest and one of the most substantial in the city, as well as the largest devoted to education in Britian. The transfer of the equipment is far advanced, but the difficulties involved in commencing the work of the session under the new conditions have necessitated the postponement of the formal opening to a later period of the session. The total expenditure to date on the site, building, and equipment has been 163,060*l.*; the building and equipment fund now stands at 209,763*l.*, of which 198,845*l.* has been received. The small balance available after payment of the liabilities already incurred is not sufficient to enable the Governors to proceed with the remaining section of the building, but it is hoped that they will soon be placed in a position to complete the scheme originally proposed.

Legal.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS.

THE case of Barff *v.* Mann, Crossman, & Paulin came before Mr. Justice Bray, sitting as Vacation Judge, on Wednesday last.

Mr. Neville, in opening the case, said it was a motion by the plaintiff for an *interim* injunction restraining the defendants until the trial or further order from building so as to obstruct the ancient lights in the plaintiff's buildings.

His lordship: I have seen the affidavits, but not any exhibits or plans, and I cannot give any opinion without the plans.

Mr. Bramwell Davis, K.C., representing the defendants, said he had a preliminary objection, and that was that the plaintiff was premature in suing. He submitted that the plaintiff could not sue until after twenty years had expired when his light accrued. The plaintiff's own evidence showed that the action was premature.

Mr. Neville differed, and said that that question depended upon the construction of section 3 of the Prescription Act. The buildings in question were actually started in the beginning of 1885, and the windows in respect of which the plaintiff was claiming were chiefly on the ground, first, and second floors. The first floor windows were completed in June, 1885, the second floor windows in July, 1885, and the third floor windows by September 1, 1885, and the ceilings, roof, and joists were put over on September 21, 1885. He had an affidavit by the architect under whose direction the building was erected stating that twenty years had elapsed since the windows were put in.

Mr. Bramwell Davis: The authorities say you must have a building roofed in.

His lordship: The point is whether a house can be a dwelling-house until it be roofed in.

Mr. Neville replied it was clear that if they had put on the roof by September 8, 1885, the date of the issuing of the writ, no exception could have been taken. He submitted that the important thing to see was whether there had been uninterrupted access of light to certain definite apertures for the period of twenty years. The buildings in question were industrial dwellings—in other words, self-contained flats, and before July 1 the ground floor was completed.

His lordship: Do you call them separate buildings?

Mr. Neville: They are separate tenements. I submit you ought to consider them separate buildings for the purposes of the Act.

His lordship: If I decide against you, you can issue another writ.

Mr. Neville hoped his lordship would not put the plaintiff to that expense.

His lordship: I confess I am against you on the point.

Mr. Neville contended that section 3 of the Prescription Act did not lay down that the finishing of the roof was of vital importance.

His lordship, in giving judgment, said he must decided against the plaintiff on the simple ground that the action was premature. It was admitted that this was not a dwelling-house in September, 1885, and, in his opinion, the section of the Prescription Act cited was not intended to include a building which was not completed.

Mr. Neville: Then I must issue another writ.

His lordship: Yes, you can do that or you can go to the Court of Appeal if I am wrong.

Mr. Neville: Yes. Then the present action will be dismissed with costs?

His lordship: Yes.

Order accordingly.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

17,409 of 1904.—E. BOMMER: *Spring Hinges.*

A spring hinge, the body of which is composed of a web provided with a recess in its lower edge and barrels at the ends of said web, and a sheet-metal covering for said hinge body composed of three parts, a web covering extending over the upper edge of the web of the hinge and connected by a lock seam to the lower edge of the same, two coverings for the barrels connected by longitudinal lock seams at their sides with the sides of the web covering.

19,595 of 1904.—A. J. BOULT (E. MOLAS): *Water or other Heaters.*

A heating apparatus comprising a closed casing, an air supply jacket within said casing, an annular boiler or generator within said jacket, a heating device within said boiler, with the air inlet and combustion air inlet so arranged that they may be extended into the outer atmosphere with their ends terminating at approximately the same point.

19,656 of 1904.—J. J. STRAIN: *Gas Stoves.*

This relates to a gas cooking stove, consisting in the combination with the stove body of a boiler for containing water that is placed in the stove so as to form the roof of the oven, and pipes connected to the boiler for receiving cold water from, and for delivering warmed water to, a storage tank, a flue in the lower part of the boiler and an opening from the flue, at the rear side to the open air, a plate having its central portion removed in the oven supporting the boiler, said plate having openings that coincide with the said flue and pipes for circulating the water to and from the boiler.

20,481 of 1904.—W. WYSSLING: *Pressing and Moulding Machines for the Manufacture of Briquettes, Bricks, or the like.*

A pressing or moulding machine for the manufacture of bricks or the like, in which a pawl is carried by a lever which is adapted to turn freely on the boss of a table, the free end of which lever is connected by a chain to a crank mounted on the shaft, said pawl engaging with a ratchet wheel mounted on the boss of the table, and whereby an intermittent rotary movement is imparted to the latter, and temporary stopping of the table being insured by a stop pin which is indirectly actuated by a toothed wheel.

22,169 of 1904.—W. H. PERKIN and WHIPP BROS. & TOD, LTD.: *Treatment of Wood for Rendering it Fireproof.*

According to the invention, the wood to be treated is placed in a vessel, which is then tightly closed, and a solution of stannate of soda of 32° Beaumé is forced into the vessel, and a pressure of 500 lb. per sq. in. is kept upon the contents for about six hours. The solution is then run out of the vessel. The wood is then dried by hot air, but is allowed to stand till the fixation of stannic acid within it is complete.

23,292 of 1904.—H. H. LAKE (CHEMISCH-TECHNISCHE FABRIK, DR. A. R. W. BRAND & CO.): *Colouring of Stone.*

A process for the production of marbling by colouring stone surfaces without the employment of skinning means, consisting in first impregnating the stone to be treated with an ammoniacal metallic salt solution and then with a neutral alkali salt solution.

23,464 of 1904.—J. E. A. SQUIRE and H. A. SQUIRE: *One-Lever Locks and Latches.*

According to the invention, the usual spring which is fixed to the lever is dispensed with, and instead a V-shaped or U-shaped spring is employed, which is made entirely independent of and separate from the lever, and is made from thin strip steel or other suitable metal, bent to the required shape, and of somewhat less width than the depth of the interior of the lock or latch case from front to back. This spring is situated between the side of the lock and the lever, and in order that the spring may always bear properly on the lever, said lever is made with a projection at that side, against which the spring bears.

23,963 of 1904.—H. NICHOLSON, C. HUNTER, and J. CAMPBELL: *Safety Suspending Apparatus for Mining Cages, Lifts, and the like.*

This relates to safety suspending apparatus for mining cages, lifts, and the like, comprising gripping jaws adapted to engage vertical ropes or the like disposed in the shaft, levers on which the jaws are mounted pivoted to the cage, a weighted or spring-pressed rocking lever suitably pivoted on the cage and adapted to engage the jaw levers, and means for supporting the rocking lever from the main shackle, so that when the cage is suspended the levers on which the gripping jaws are mounted are in such a position that the jaws are opened.

24,322 of 1904.—C. H. BAXTER: *Saws for Stone or like Cutting Machines.*

This relates to a saw, and consists in forming grooves or cuts of convenient width towards the cutting face of the saw blade, such grooves extending from the cutting face to the said saw blade about one-third of the depth of the same, and at an angle of 45°, the said grooves being formed in pairs. By so constructing a saw blade it is claimed that the waste of the sand used is obviated.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

25,057 of 1904.—A. D. TIPPER: *Construction and Manufacture of Sash Pulleys.*

A sash pulley having its frame formed in separate halves, the plane dividing the halves, when the same have been put together, being parallel with the sides or cheeks thereof, each half frame having integral together with one of the cheeks half the fore-end, a pair of lugs which project from the inner face of the cheek and butt against the corresponding lugs of the other cheek when the halves of the frame are put together, and one of the cheeks having integral therewith and near its rear edge a stud, which projects from the inner face thereof and engages the other cheek.

155 of 1905.—R. W. NEWLANDS: *Door Buffer or Stop.*

According to the invention, a metal trough-shaped casing is made, and in said casing is placed an indiarubber ring, one half of which projects beyond the casing, the indiarubber ring being preferably held in the casing by a screw. The casing, with the spring ring, is screwed into the door frame in such a position that the door strikes the edge of the ring.

1,196 of 1905.—R. LEGGOTT and W. & R. LEGGOTT, LTD.: *Opening and Closing of Fanlight and like Frames.*

According to the invention, to a fanlight or other hinged or pivoted frame is secured a bracket provided with a sliding bolt in a position to engage with a striking plate secured to the fixed frame of the fan-light for locking said movable frame when entirely closed. One end of a cord is attached to the sliding bolt, and the other to the said bracket for operating the apparatus, each end of the cord being guided by a pulley, one mounted on the striking plate frame and the other on the bracket.

2,157 of 1905.—H. FAHLE: *Snow Guard for Roofs.*

This relates to a lattice snow guard, in which the top of the lattice work lying on the roof is furnished with an upwardly deflecting plate, and is pivotally attached to the roof, so as to be automatically brought into an upright position by the sliding down of the snow and automatically returned to the original position after the snow has melted.

7,837 of 1905.—P. H. BEVIER: *Reinforced Terra-cotta Arches.*

This relates to a fire-proof construction consisting of an arch characterised by the employment of a foraminous metallic tension member between adjacent courses of compression members and in the tension zone, the said tension member being lower at or near the underside of the arch, the said member being embedded in the mortar or cement joint, and the interstices of the same being filled by the mortar or cement.

8,295 of 1905.—E. MOCCETTI: *Reinforced Girders or Beams.*

A girder of reinforced stone of great resistance and small dimensions, composed of a metal reinforcement of flat curved bars, the curve of which is greatest at the places where molecular forces of compression are the highest, blocks of artificial or natural stone being in the regions where the said stresses of compression are the greatest, and a filling of concrete in the intermediate parts, means for connecting together the flat iron bars of the metal reinforcements, consisting of an angle-iron or ⊥-shaped iron bars in short lengths, which ⊥-shaped iron bars traverse the projecting portions of the bars of the metal reinforcements.

11,322 of 1905.—C. GERBER: *Cement Fences.*

This relates to a fence of concrete or the like, consisting of sets of posts and plates, the said posts being divided into several pieces so that the height of the fence may be varied, a holding-down bolt within the pieces of the posts, and grooves and tongues on the fitting ends of the pieces of the posts, the grooves of the head-pieces of the post ends being short of the top face so as to prevent the uppermost plate from being removed.

12,162 of 1905.—H. STEWART: *Machine for Manufacturing Hollow Artificial Stone Beams or Girders.*

A method of forming hollow girders or beams by means of a travelling cement forming and discharging machine, consisting in first moving the carriage so as to deposit and level a bottom layer of sand of the desired length and width, then placing a number of cores on said layer for producing the hollow portions of the girders, then raising the carriage and moving it over the bottom layer and cores while depositing a further supply of cement thereon to form the walls and back of the girder structures, the latter being preferably simultaneously, with the last-named operation cut into separate girder lengths, by plates on the underside of the travelling apparatus.

13,146 of 1905.—W. SMITH: *Earthenware and Other Sinks, Baths, and the like.*

This consists in the combination with sinks, wash-tubs, or the like made of earthenware or other suitable material of external protuberances on the surfaces of the same, and arranged thereon in such number and in such positions and of such shapes and sizes and configuration as may be desired.

15,268 of 1905.—A. P. BOSSERT: *Roof, Wall, and like Tiles or Slabs.*

This consists in the employment, in addition to rods or wires embedded in the slab and acting as tension rods, of thin metal rods or wires embedded in the tile and encircling nail holes formed therein.

760 of 1905.—E. E. W. BUTT *Inspection Cover for Sewerage Manholes in Connexion with Gas or Similar Works.*

This relates to inspection covers for sewerage manholes and chambers in connexion with gas, water, or similar works, in which the lid is situated upon cushion blocks, the top of the said cushion being bevelled in an inward direction, in combination with opposite bevels formed upon the lid, whereby the sealing upon the cushion is equalised and any lateral movement of the cover prevented.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 18s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder" by *Friday Morning's Post.*

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

Sept. 28.—By BALLARD & MARSH (at Twickenham).

Twickenham.—"Orleans View," Richmond-rd., f., e.r. 65*l.*	£850
2, Victoria-rd., u.t. 62½ yrs., g.r. 6*l.* 10s., e.r. 30*l.*	210
Teddington.—Fulwell-rd., a freehold residence, e.r. 30*l.*	450

Oct. 2.—By BALLS & BALLS.

Stoke-by-Clare, Suffolk.—The four manors of Stoke College Estate (fine arbitrary)	750

By T. B. WESTACOTT.

Camden Town.—218, Great College-st., u.t. 35½ yrs., g.r. 6*l.*, y.r. 46*l.*	400

By WILLOUGHBY, SON, & CALLOW.

Norwood.—44, Crescent-rd., u.t. 69 yrs., g.r. 12*l.* 10s., e.r. 52*l.* 10s.	360

Oct. 3.—By DRYSDALE, NURSE, & CO.

Stoke Newington.—84, Queen Elizabeth-walk, u.t. 65 yrs., g.r. 11*l.* 11s., e.r. 65*l.*	740
18, Heathland-rd., u.t. 74 yrs., g.r. 9*l.* 9s., e.r. 65*l.*	700
Stamford Hill.—37, West-bank, u.t. 78 yrs., g.r. 8*l.*, e.r. 55*l.*	500

By HEPPER & SONS (at Leeds).

Leeds.—6, 8, 10, and 20, Little Queen-st., f., y.r 45*l.* 10s.	440
22, Back-row, and 11, Middle-walk, f., w.r. 15*l.* 12s.	128
11 and 12, Watkinson's-yard, f., w.r. 16*l.* 8s.	145
24 to 30 (even), Wheeler-st. (s.), f., y.r. 65*l.* 12s.	575

Oct. 4.—By J. H. BULMER.

Dulwich.—3, Fenwick-rd., u.t. 60½ yrs., g.r. 5*l.*, y.r. 34*l.*	310

By DRIVERS'.

Holloway.—20, Hercules-rd. (s.), u.t. 48 yrs., g.r. 5*l.* 5s., y.r. 42*l.*	320

By DOUGLAS, YOUNG, & CO.

Clapham.—61, Chelsham-rd., u.t. 57 yrs., g.r. 9*l.*, e.r. 60*l.*	580

October 5.—By CHESTERTON & SONS.

City.—6, Bevis Marks (business premises), f., y.r. 350*l.*	7,000
Putney.—Oakhill-rd., "Richmond Cottage," f., p.	1,275

By P. J. DIXON & SON.

Plaistow.—26, 32, 34, and 36, Burnham-st., f., w.r. 104*l.*	770
13 and 15, Woodstock-rd., f., w.r. 57*l.* 4s.	380
Poplar.—East India Dock-rd., f.g.r. 20*l.*, reversion in 63 yrs.	470
20 and 21, Oriental-st., u.t. 54 yrs., g.r. 7*l.* 10s., w.r. 59*l.* 10s.	470
19 and 21, Morant-st., u.t. 54 yrs., g.r. 5*l.* 10s., w.r. 59*l.* 16s.	450
74 and 76, Glengall-rd., u.t. 36 yrs., g.r. 5*l.* 12s., w.r. 55*l.* 18s.	250
51, Kerbey-st., u.t. 53 yrs., g.r. 3*l.* 15s., w.r. 39*l.*	190
19 to 47 (odd), Giraud-st., u.t. 48½ yrs., g.r. 27*l.*, w.r. 327*l.* 12s.	1,620
Limehouse.—51, 53, and 55, Burgess-st., w.r. 81*l.* 6s., also i.g.r. 7*l.*, u.t. 60½ yrs., g.r. 12*l.* 10s.	560
61, 63, and 65, Burgess-st., and 45, 47, and 49, Thomas-st., w.r. 173*l.* 6s.; also i.g.r. 21*l.* 1s., u.t. 58 yrs., g.r. 20*l.*	1,280
35 and 37, Thomas-st., w.r. 51*l.*; also i.g.r. 7*l.*, u.t. 58 yrs., g.r. 9*l.*	355
Poplar.—26 and 28, Market-st., u.t. 48 yrs., g.r. 17s. 6d., w.r. 37*l.* 14s.	225
Canning Town.—Vincent-st., the "Vincent Tavern," f.g.r. 30*l.*, reversion in 59½ yrs.	800
Plaistow.—26, 28, and 30, Garfield-rd., f., w.r. 54*l.* 12s.	460
Dalston.—1, St. Philip's-rd., u.t. 44½ yrs., g.r. 6*l.*, y.r. 35*l.*	245
Bromley-by-Bow.—63, 65, and 67, Swaton-rd., u.t. 57 yrs., g.r. 10*l.* 10s., w.r. 93*l.* 12s.	680

By W. A. HEAD.

Tooting.—39 and 41, Himley-rd., u.t. 58 yrs., g.r. 7*l.*, w.r. 67*l.* 12s.	410

By NEWBON, EDWARDS, & SHEPHARD.

Clerkenwell.—15 to 18, Benjamin-st., u.t. 14½ yrs., g.r., etc., 26*l.* 10s., y.r. 144*l.*	£500
Balls Pond.—46, Kingsbury-rd., u.t. 46 yrs., g.r. 6*l.*, y.r. 32*l.*	275
Caledonian-road.—85 to 95 (odd), Pembroke-st., u.t. 48 yrs. and 44 yrs., g.r. 9*l.*, w.r. 296*l.* 8s.	1,700
Holloway.—51, York-rd., u.t. 55½ yrs., g.r. 6*l.*, y.r. 43*l.*	350
Islington.—6 and 7, Studd-st., u.t. 9 yrs., g.r. nil, y.r. 59*l.* 18s.	185
15 and 17, Morton-rd., u.t. 37 yrs., g.r. 10*l.*, y.r. 68*l.*	550
Tottenham.—Manor-rd., f.g.r. 22*l.* 10s., reversion in 72 yrs.	480
Camberwell.—4, Vicarage-rd., u.t. 45 yrs., g.r. 6*l.* 10s., y.r. 36*l.*	280

By STIMSON & SONS.

Blackfriars.—83 and 84, Upper Ground-st. (s.), c., y.r. 68*l.* 18s.	460
Battersea.—17, 39, 41, 43, and 45, Gladstone-st., u.t. 57 yrs., g.r. 75*l.*, w.r. 208*l.*	250
Walworth.—150, 152, 154, 160, and 162, Lorrimore-rd., u.t. 44 yrs., g.r. 18*l.*, y.r. 150*l.*	1,485
Clapham.—Clayknobs-rd., f.g.r. 9*l.*, reversion in 17½ yrs.	485
11, Carroun-rd., u.t. 13½ yrs., g.r. 4*l.*, w.r. 41*l.* 12s.	130
Peckham.—1, 3, and 5, Chadwick-rd., f., y.r. 100*l.* 8s.	1,390
18 to 28 (even), Chadwick-rd., u.t. 47 yrs., g.r. 24*l.*, y.r. 192*l.* 14s. 4d.	1,435
Dulwich.—18, Gowlett-rd., u.t. 65 yrs., g.r. 7*l.*, e.r. 34*l.*	320
Sydenham.—55, 57, and 59, Porthcawe-rd., u.t. 89½ yrs., g.r. 13*l.* 10s., w.r. 59*l.* 16s.	105
Manor Park.—1, Fifth-av., u.t. 78½ yrs., g.r. 3*l.* 10s., w.r. 26*l.*	115

By WM. WESTON.

Paddington.—95, Praed-st. (s.), u.t. 51 yrs., g.r. 25*l.*, y.r. 160*l.*	1,100
Marylebone.—80 and 82, Church-st. (s.), u.t. 16 yrs., g.r. nil, y.r. 155*l.*	1,300
98 and 107, Earl-st., and 17, Little Earl-st., u.t. 9½ yrs., g.r. 7*l.* 7s., y.r. 91*l.* 10s.	300

October 6.—By HUNTER & HUNTER.

Dulwich.—South Croxted-rd., l.g. rents 57*l.* 12s., u.t. 67 yrs., g.r. 6*l.*	1,060
Hackney.—30, Aspland-gr., u.t. 54½ yrs., g.r. 4*l.* 5s., w.r. 31*l.* 4s.	225

By MARK LIELL & SON.

Bow.—14, Norman-rd., f., w.r. 39*l.*	405
Forest Gate.—6, 8, and 10, Wellington-rd., f., w.r. 79*l.* 4s.	620
Leyton.—1, Sunnyside-rd., f., e.r. 38*l.*	365
132 and 134, Frith-rd., u.t. 76 yrs., g.r. 12*l.*, w.r. 46*l.* 16s.	210

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PUBLISHER'S NOTICES.

Nat. Tel., 6113, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXVIII. (January to June, 1905) was given as a supplement with the number of July 8th.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 2s. each.

THE EIGHTY-EIGHTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, now ready.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

Six lines or under	2s. 6d.
Each additional line	1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under	4s. 6d.
Each additional line (about ten words)	0s. 6d.

Terms for series of Trade advertisements, and for front page, and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

Four lines (about thirty words) or under	2s. 6d.
Each additional line (about ten words)	0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps must not be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

MEETINGS.

FRIDAY, OCTOBER 13.

Royal Institute of British Architects.—9.30 a.m.: Steamboat excursion on the Tyne, concluding with a visit to Tynemouth Priory. 1.30 p.m.: Luncheon; the Institute will be entertained by the Northern Architectural Association at the Barras Bridge Assembly Rooms. In the afternoon visits to places of interest: The Castle and Black Gate (under the guidance of Mr. J. Oliver Heslop, M.A., F.S.A.), the Cathedral, the Guildhall, the Laing Art Gallery. 7.30 p.m.: The Annual Dinner at the Old Assembly Rooms.

Royal Sanitary Institute.—Dr. E. J. Steegmann on "Elementary Chemistry." 7 p.m.

SATURDAY, OCTOBER 14.

Royal Institute of British Architects.—Visit to Durham Cathedral (under the guidance of Mr. C. Hodgson Fowler, M.A.) and to Hexham Abbey (under the guidance of Mr. C. C. Hodges, F.S.A.). [The Edinburgh Architectural Association will entertain at lunch on Monday, 16th, members who desire to extend their Northern Visit to Edinburgh and inspect the Goodyear Exhibition of Architectural Refinements.]

MONDAY, OCTOBER 16.

Royal Sanitary Institute.—Dr. E. J. Steegmann on "Elementary Chemistry and Meteorology." 7 p.m.

TUESDAY, OCTOBER 17.

Royal Institute of Public Health (Harben Lectures).—Professor T. Oliver, M.A., on "Some of the Maladies Caused by the Air we Breathe in the Home, the Factory, and the Mine, including a Description of Caisson Disease or Compressed Air Illness." III. 5 p.m.

Architectural Association Camera and Cycling Club.—Mr. Ernest Marriage on "The Sculptures of Chartres." 7.30 p.m.

WEDNESDAY, OCTOBER 18.

Royal Sanitary Institute.—Dr. E. J. Steegmann on "Analysis of Air and Water." 7 p.m.

The Junior Institution of Engineers.—Visit to the Electrical Exhibition at Olympia, by invitation of the Executive Committee. 4 p.m.

The Institute of Builders.—Dinner, Whitehall Rooms, Hotel Métropole, Charing Cross. 6.30 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary Meeting of the Members. 8 p.m.

Institute of Sanitary Engineers, Ltd.—Sessional Meeting. Paper by Mr. F. Aldous entitled "Ventilation of Buildings." 7 p.m.

FRIDAY, OCTOBER 20.

Royal Sanitary Institute.—Mr. W. C. Tyndale on "Calculations, Measurements, and Plans and Sections." 7 p.m.

The Architectural Association.—Mr. Andrew Oliver on "London City Churches," illustrated with lantern views. 7.30 p.m.

Institute of Mechanical Engineers.—8 p.m.

TO CORRESPONDENTS.

"A STUDENT AND READER OF THE 'BUILDER'" (send your name and address, and we will answer your question by letter. We cannot introduce it into the Student's Column at present, as we are not dealing with that class of subject).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	8	0	per 1000	alongside,	in river.
Rough Stocks and Grizzles	1	4	0	,,	,,	,,
Facing Stocks	2	0	0	,,	,,	,,
Shippers	2	0	0	,,	,,	,,
Flettons	1	7	0	,,	at railway	depôt.
Red Wire Cuts	1	11	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire	4	1	0	,,	,,	,,
Do. Bullnose	4	6	6	,,	,,	,,
Best Stourbridge Fire Bricks	3	15	6	,,	,,	,,
GLAZED BRICKS. Best White and Ivory Glazed Stretchers	12	0	0	,,	,,	,,

BRICKS, &c. (*continued*).

	£	s.	d.			
Headers	11	0	0	per 1000	at railway	depôt.
Quoins, Bullnose, and Flats	16	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	14	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	

	s.	d.		
Thames and Pit Sand	6	9	per yard,	delivered.
Thames Ballast	5	3	,,	,,
Best Portland Cement	26	0	per ton,	,,
Best Ground Blue Lias Lime	19	0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.		
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	,,	,,
PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2	1	,,	,,
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2	2½	,,	,,

	s.	d.		
Ancaster in blocks	1	10	per ft. cube,	deld. rly. depôt.
Beer ,,	1	6	,,	,,
Greenshill ,,	1	10	,,	,,
Darley Dale in blocks	2	4	,,	,,
Red Corsehill ,,	2	2	,,	,,
CloseburnRedFreestone	2	0	,,	,,
Red Mansfield ,,	2	4	,,	,,

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,

HARD YORK—

Scappled random blocks	3	0	per ft. cube,	,,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2	8	per ft. super.	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides (slabs random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

	s.	d.			
Hopton Wood (Hard Bed) in blocks	2	0	per ft. cube.		
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super.	deld. rly. depôt.	
,, ,, ,, 3 in. sawn both sides random slabs	1	0	,,	,,	
,, ,, ,, 2 in. do.	0	8½	,,	,,	

SLATES.

in.	in.	£	s.	d.		
20 x 10	best blue Bangor	13	2	6	per 1000 of 1200 at	r. d.
20 x 12	,, ,,	13	17	6	,,	,,
20 x 10	first quality ,,	13	0	0	,,	,,
20 x 12	,, ,, ,,	13	15	0	,,	,,
16 x 8	,, ,, ,,	7	5	0	,,	,,
20 x 10	best blue Portmadoc	12	13	6	,,	,,
16 x 8	,, ,,	6	12	6	,,	,,
20 x 10	best Eureka unfading green	15	17	6	,,	,,
20 x 12	,, ,,	18	7	6	,,	,,
18 x 10	,, ,,	13	5	0	,,	,,
16 x 8	,, ,,	10	5	0	,,	,,
20 x 10	permanent green	11	12	6	,,	,,
18 x 10	,, ,,	9	13	6	,,	,,
16 x 8	,, ,,	6	12	6	,,	,,

TILES.

	s.	d.		
Best plain red roofing tiles	42	0	per 1000 at	rly. depôt.
Hip and Valley tiles	3	7	per doz.	,, ,,
Best Broseley tiles	50	0	per 1000	,, ,,
Do. Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Do. Ornamental do	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,

TILES—(*continued*).

	s.	d.		
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000	at rly. depôt.
Do. Ornamental do	54	6	,,	,, ,,
Hip tiles	4	1	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
Best "Rosemary" brand plain tiles	48	0	per 1000	,, ,,
Best Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
Best "Hartshill" brand plain tiles, sand faced	50	0	per 1000	
Do. wrossed	47	6	,,	,, ,,
Do. Ornamental do	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13	10	0	15	0	0
Deals: best 3 by 9	13	0	0	14	0	0
Battens: best 2½ in. by 7 in. and 3 in., and 3 in. by 7 in. and 3 in.	11	0	0	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 3 in.		
Deals: seconds	1	0	0	less than best.		
Battens: seconds	0	10	0	,,	,,	,,
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	9	10	0
Foreign Sawn Boards—1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	,,		

	At per load of 50 ft.					
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	5	0	0
Seconds	4	0	0	4	10	0
Small timber (6 in. to 10 in.)	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	10	0	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	3	15	0

JOINERS' WOOD.	At per standard. £	s.	d.	£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in	24	0	0	25	0	0
3 in. by 9 in.	22	0	0	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	18	0	0
Second yellow deals, 3 in by 11 in.	18	10	0	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	12	0	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.	18	0	0	19	10	0
Battens	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.	14	10	0	16	0	0
Battens	11	0	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	14	0	0
Do. 3 in. by 9 in.	12	10	0	14	0	0
Battens	10	0	0	11	0	0
White Sea and Petersburg:— First white deals, 3 in. by 11 in.	14	10	0	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	13	10	0
,, ,, battens	10	0	0	11	0	0
Pitch-pine: deals	16	10	0	20	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	,,		
Seconds, regular sizes	33	0	0	,,		
Yellow Pine oddments	28	0	0	,,		
Kauri Pine—Planks, per ft. cube	0	3	6	0	5	0
Dansig and Stettin Oak Logs—Large, per ft. cube	0	3	0	0	3	6
Small ,, ,,	0	2	6	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	0	0	9
¾ in. do. do.	0	0	7	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	0	1	0
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	6
Dry Walnut, American, per ft. sup. as inch	0	0	10	0	1	0
Teak, per load	17	0	0	22	0	0
American Whitewood Planks, per ft. cube	0	4	6	0	5	0

Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	0	13	6
1 in. by 7 in. do. do.	0	14	0	0	18	0
¾ in. by 7 in. white do. do.	0	10	0	0	11	6
1 in. by 7 in. do. do. do.	0	12	9	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, £	s.	d.	or delivered Railway Vans, per ton. £	s.	d.
Rolled Steel Joists, ordinary sections	6	5	0	... 7	0	0
Compound Girders, ordinary sections	7	15	0	... 8	15	0
Steel Compound Stancheons	9	7	6	... 10	17	6
Angles, Tees and Channels, ordinary sections	7	15	0	... 8	15	0
Flitch Plates	8	0	0	... 8	10	0
Cast Iron Columns and Stanchions including ordinary patterns	6	17	6	... 8	0	0

CONTRACTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues.)

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
ROAD MAKING AND PAVING WORKS	Hendon U.D.C.	Council's Engineer, Council Offices, Hendon, N.W.	Oct. 16
*SUP. OF SHINGLE & FIXING WOOD FENCING	do.	do.	do.
Two Small Filters and Clear-water Well	Dundee Water Commissioners	G. Baxter, Engineer, 91, Commercial-street, Dundee	Oct. 17
Lancashire Boiler at Otley Workhouse	Wharfedale Guardians	E. C. Newstead, Clerk, Union Offices, Otley	do.
Storey Institute, Lancaster: Additions		Wright & Son, Surveyors, Lancaster	do.
Cloakroom, Retaining Walls, etc., at Garnfach School	Monmouthshire Education Com.	R. L. Roberts, Architect, Abercarn	do.
One 36-kilowatt Steam Balancer	Worksop U.D.C.	J. F. Crowther, Electrical Engineer, Worksop	Oct. 18
One Water Softener	do.	do.	do.
Cast-Iron Chairs	East Indian Railway Co.	At the Offices of the Company, Nicholas-lane, London, E.C.	do.
Grey Hematite Pig-Iron	do.	do.	do.
Widening of Union Bridge	Aberdeen Town Council	W. Dyack, Burgh Surveyor, 41½, Union-street, Aberdeen	do.
Road Repair, Dorking Union Workhouse	Dorking Guardians	W. James, Clerk, Dorking	do.
Scavenging	Hale U.D.C.	Inspector of Nuisances, Council Offices, Ashby-road, Hale	do.
Block of Elementary Schools for 600	Isle of Ely Education Committee	R. S. W. Perkins, County Surveyor, Commercial-road, Ely	do.
Creosoting Red Fir Telegraph Poles	Postmaster-General	S. C. Hooley, Controller of Stores, 17 and 19, Bedford-st., W.C.	do.
Goods and Materials	Atherton U.D.C.	Surveyor to the Council, Town Hall, Atherton	do.
Steam Engine and Two Pumps at Waterworks	Leyland U.D.C.	W. Wrennall, Engineer, 9, Harrington-street, Liverpool	do.
Pair of Semi-detached Houses, Kirkley-in-Furness		W. Moss Settle & F. Brown, 127, Ramsden-sq, Barrow-in-Furness	do.
Field Drainage Works, Lower Cullerme, etc., Farms	Leeds Education Committee	G. Gordon & Co., Engineers, Inverness	do.
Galvanised Iron Structure, Kirkstall-road	Horwich U.D.C.	W. S. Braithwaite, Architect, Education Offices, Leeds	do.
1,700 yds. of 12-in. Cast-Iron Pipes	Radcliffe U.D.C.	P. Taberner, Clerk, Council Offices, Horwich	do.
Sewage Works, Mount Sion-road, Radcliffe		W. L. Rothwell, Engineer, Council Offices, Radcliffe	do.
Excavate and Clear Reservoir, Fairlie Wtrwks., Largs	Hendon R.D.C.	A. Stevenson, C.E., 14, Cathcart-street, Ayr	do.
970 ft. of Iron Bar Fencing	Glamorgan C.C.	J. A. Webb, Engineer, Stanmore	do.
Widening Bridgend, etc., Main Road at Coychurch	Metropolitan Asylums Board	T. M. Franklen, Clerk, Westgate-street, Cardiff	do.
*COVER. HEATERS & PIPING, AT BROOK HOU.	Croydon R.D.C.	Office of the Board, Embankment, E.C.	do.
1,200 ft. of 9-in. Pipe Sewer, Higher Drive, Purley		R. M. Chart, Surveyor, Town Hall, Croydon	do.
Farm Buildings at East Ash Farm, Morchard Bishop	Messrs. Alexander & Sons	Cook & Birmingham, Bampton-street, Tiverton	Oct. 19
Avenue Mineral and Aerated Waterworks, Kendal	Pontefract Industrial Society	J. F. Curwen, F.S.I.B.A., 26, Highgate, Kendal	do.
Branch Stores, South Elmsall, near Doncaster	Mile End Guardians	Garside & Pennington, Architects and Surveyors, Pontefract	do.
*NURSES HOME AT INFIRMARY, MILE END	Rhondda U.D.C.	J. M. Knight, Architect, 35, Bancroft-road, Mile End-road, E.	do.
Waste-water and Recording Meter	Merthyr Tydfil Guardians	O. Thomas, Engineer, Gas and Water Offices, Pentre	Oct. 20
Two Cottage Homes for Children, Bargoed	Mr. J. R. Grainger	T. Roderick, Architect, Clifton-street, Aberdare	do.
Detached Residence, Otley-road, Eldwick	Alnwick R.D.C.	W. R. Nunns, Architect, 73, Market-street, Bingley	do.
Metal Pipes for Convey. Water, Acklington Station	Glamorgan Quarter Sessions	H. W. Walton, Clerk, Alnwick	do.
Police Station at Gorsenion	Gadlys Uchaf Building Club	T. M. Franklen, Clerk, Westgate-street, Cardiff	Oct. 21
61 Houses, Aberdare	Romford R.D.C.	T. D. Williams, 10, Canon-street, Aberdare	do.
Road Material	Broadstairs U.D.C.	G. Lapwood, Highways' Surveyor, Victoria-chambers, Romford	Oct. 23
1,100 cubic yds. of Broken Pit Flints	Liverpool Select Vestry	H. Hurd, C.E., Town Surveyor, Broadstairs	do.
Convales. Hosp. for Child., Olive Mount, Wavertree	Blything Guardians	E. Kirby, Architect, 5, Cook-street, Liverpool	do.
Deepening Well at Workhouse, Bulcamp, Halesworth	Wallasey U.D.C.	H. A. Mullens, Clerk, Union Offices, Bulcamp, Halesworth	do.
400 tons of 4-in. Granite Cube Setts	Surrey Education Committee	W. H. Travers, Engineer, Public Offices, Egremont, Cheshire	do.
*ALTERA. & ADDIT. TO SCHO., WARLINGHAM	United W'minster & Wrexham Colls.	Jarvis & Richards, Architects, 36, Victoria-street, S.W.	Oct. 24
Driving, etc. a Tunnel (500 to 600 yds. long)	G.W. & G.C. Rlys. Joint Committee	W. Edwards, Engineer's Office, Ruabon	do.
*ERECT. OF STATION AT HADDENHAM, BUCKS	Ealing Town Council	Engineer, Great Central Railway, Marylebone Station	do.
*MAKING-UP ROAD AND BACK ALLEYS	Glyncorrwg U.D.C.	Council's Engineer, Town Hall, Ealing, W.	do.
Culverting of Gwynfi Brook, Blaengwynfi	Mr. W. Walfenden	W. P. Jones, Surveyor, Council Offices, Cymmer	do.
Additions to Duke of Gordon Hotel, Kingussie	do.	A. Cattanach & Son, Architects, Kingussie, N.B.	do.
Stables, Coach House, Motor Car Buildings	Beeston U.D.C.	do.	do.
Stabling, Fire-Station, etc., Stoney-street Depôt	St. Helen's Borough Council	Surveyor, Public Offices, Beeston	Oct. 25
*NEW SCHOOLS, THATTO HEATH, ST. HELEN'S	Tourist Development (Ireland), Ltd.	F. S. Biram, Architect, Hardshaw-street, St. Helen's	do.
Additions, etc., Laharna Hotel, Larne	Cardiff Corporation	Shean and Dickson, 16, High-street, Belfast	do.
Branch Library, Canton	do.	E. M. Bruce-Vaughan, 21, Dumfries-place, Cardiff	do.
Branch Library, Cathay	Birmingham Public Works Com'tee	Spiers & Beavan, 10, Queen-street, Cardiff	do.
3,000 tons Tram Rails, British Standard, Section No. 4	Wood Green U.D.C.	J. Price, City Engineer, Council House, Birmingham	do.
*MAK.-UP GRASMERE & WINDERMERE ROADS	Wood Green U.D.C.	Council's Surveyor, Town Hall, Wood Green	do.
Private Street Improvements, Wood Green	Lambeth Borough Council	G. J. Gunyon, Surveyor, Town Hall, Wood Green	do.
Underground Convenience, Waterloo-road	Woking U.D.C.	H. Edwards, Borough Engineer, 346, Kennington-road, S.E.	Oct. 26
1,300 Tons of 2-in. Basalt		G. J. Wooldridge, Surveyor, Bank-chambers, Woking	Oct. 27
Tabor C.M. Chapel, Schools, etc., Maesteg	The Managers	Beddoe Rees, Architect, 3, Dumfries-place, Cardiff	Oct. 28
Enlarge. of Cloakrooms, etc., Plympton St. Mary Sch.	Wirral Guardians	Mr. Gilmour, at the School	Oct. 31
*EREC. INFIRM., ETC., CLATTERBRIDGE. WKHSE.	Arundel Town Council	J. H. Davies & Sons, Architect, Chester	do.
Street Improvements	Easington R.D.C.	A. Holmes, Town Clerk, Arundel	Nov. 1
Sewage Disposal, Murton Colliery, Durham	Gloucestershire C.C.	C. Rule, Surveyor, Haswell, via Sunderland	Nov. 9
*POLICE STA. & PETTY SESS. CT., NR. BRISTOL		The County Surveyor, Shire Hall, Gloucester	No date.
Pair of Small Semi-Detached Villas at Llandudno	Isle of Ely Education Committee	Mines & Sutherland, Ltd., 65, South John-street, Liverpool	do.
*BLOCK OF ELEMENTARY SCHOOLS, ELY	Mr. H. H. Wilson	County Surveyor, Ely	do.
Bungalow, Sully		Teather & Wilson, Architects, Andrew's-bldgs., Queen-st., Cardiff	do.
Shop and Dwelling Houses at Thurles	Gloucester C.C.	F. Bergin, C.E., 36, Westmoreland-street, Dublin	do.
Police Station and Court, Henbury, near Bristol	War Department	County Surveyor, Shirehall, Gloucester	do.
*BOUN. WALL, ETC., KENS. PALACE BARRACKS		H. S. Measures, Architect, War Office, Atterbury-street, S.W.	do.

Those marked with an asterisk (*) are advertised in this number. *Competitions*, —. *Contracts*, iv. vi. viii. x. *Public Appointments*, —.

METALS.

	Per ton, in London. £ s. d.		£ s. d.
IRON—			
Common Bars	8 0 0	..	8 10 0
Staffordshire Crown Bars, good merchant quality	8 10 0	...	9 0 0
Staffordshire "Marked Bars"	10 0 0	...	—
Mild Steel Bars	8 15 0	...	9 0 0
Hoop Iron, basis price	9 5 0	...	9 10 0
" " Galvanized	17 0 0	...	—
("And upwards, according to size and gauge.)			
Sheet Iron, Black—			
Ordinary sizes to 20 g.	9 10 0	...	—
" " 24 g.	10 10 0	...	—
" " 26 g.	12 0 0	...	—
Sheet Iron, Galvanised, flat, ordinary quality—			
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	14 0 0	...	—
Ordinary sizes to 22 g. and 24 g.	14 10 0	...	—
" " 26 g.	15 0 0	...	—
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	17 0 0	...	—
" " 22 g. and 24 g.	17 10 0	...	—
" " 26 g.	19 0 0	...	—
Galvanised Corrugated Sheets—			
Ordinary sizes 6 ft. to 8 ft. 20 g.	13 10 0	...	—
" " 22 g. and 24 g.	14 0 0	...	—
" " 26 g.	15 5 0	...	—

METALS (*continued*).

IRON—*continued.*	Per ton, in London. £ s. d.		£ s. d.
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 10 0	...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 1 0	...	—
" " " 26 g.	14 15 0	...	—
Cut nails, 3 in. to 6 in.	9 10 0	...	9 15 0
(Under 3 in., usual trade extras.)			

LEAD, &c.

	Per ton, in London. £ s. d.		£ s. d.
LEAD—Sheet, English, 3lb. and up	17 5 0	...	—
Pipe in coils	17 15 0	...	—
Soil pipe	20 5 0	...	—
Compo pipe	20 5 0	...	—
ZINC—Sheet—			
Vieille Montagne ton	31 15 0	...	—
Silesian	31 10 0	...	—
COPPER—			
Strong Sheet per lb.	0 0 11	...	—
Thin " "	0 1 0	...	—
Copper nails "	0 0 11	...	—
BRASS—			
Strong Sheet "	0 0 10	...	—
Thin " "	0 0 11	...	—

LEAD, &c. (*continued*)—

	Per ton, in London. £ s. d.		£ s. d.
TIN—English Ingots per lb.	0 1 5½	...	—
SOLDER—Plumbers' "	0 0 7	...	—
Tinmen's "	0 0 6½	...	—
Blowpipe "	0 0 5½	...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	1¾d. per ft. delivered.
" fourths	2d. " "
21 oz. thirds	2¾d. " "
" fourths	3d. " "
26 oz. thirds	4¼d. " "
" fourths	3¾d. " "
32 oz. thirds	5¼d. " "
" fourths	5d. " "
Fluted Sheet, 15 oz.	3½d. " "
" 21 oz.	4¼d. " "
½ Hartley's Rolled Plate	2d. " "
¼ " " "	2½d. " "
⅛ " " "	2¾d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 6
" " " in barrels	"	0 1 7
" " " in drums	"	0 1 9
Boiled " in pipes	"	0 1 8
" " " in barrels	"	0 1 9
" " " in drums	"	0 1 11
Turpentine, in barrels	"	0 4 2
" in drums	"	0 4 4

OILS, &c. (*continued*).		£ s. d.
Genuine Ground English White Lead	per ton	19 15 0
Red Lead, Dry	,,	19 5 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ASHBURTON.—For 1,300 ft. of 3-in. fire main at Holne Park, for the Hon. R. Dawson, D.L. Mr. F. W. Vanstone, engineer, Palace-chambers, Paignton:—

Shand & Mason	£441	16	0
W. Grisenthwaite	230	0	0
H. R. Coles	229	0	0
T. L. Harding	204	0	0
H. F. Stevens	£210	0	0
E. Smith & Co., Baltonsborough, Somerset*	172	17	3

BARNES.—For additions to administrative block at hospital, Mortlake, for the Urban District Council. Mr. G. B. Temes, Council Surveyor, High-street, Mortlake, S.W. Quantities by Mr. A. O. Treed, 62, Lincoln's-inn-fields, W.C.:—

Mason & Gay	£1,667	0	
Spencer, Santo, & Co.	1,600	0	
King & Son	1,587	0	
Bowyer & Co.	1,565	0	
Enrea Bros.	1 520	0	
Shelbourne & Co.	1,511	0	
Harris & Co., Ltd.	1,490	0	
Hunt & Sons	1,470	11	
Hughes & Co., Ltd.	1,470	0	
G. Parker	1,447	0	
Mimmack & Co.	1,439	0	
Brooking & Son	£1,420	0	
E. Wall	1,404	0	
Myall & Upson	1,390	0	
J. Renshaw	1,380	0	
A. C. Heywood	1,379	0	
Almond & Son, Ltd.	1,378	0	
W. H. Hyde	1,322	0	
J. W. Drake	1,311	0	
W. Lowe, 190, Castelnau, Barnes*	1,307	0	
J. Christie	1,233	0	

BIRMINGHAM.—For nurses' home, Birmingham Workhouse Infirmary. Mr. W. H. Ward, architect, Paradise-street, Birmingham:—

G. Robinson	£3,296		
Cole & Son	3,100		
P. Cox	3,075		
Sapcote & Sons	3,068		
G. Jackson	3,059		
E. Crowder	3 045		
J. Atkinson	£3,045		
R. Fenwick	3,019		
B. Gibbs	2,992		
H. Pitts	2,947		
T. Wilkinson	2.808		
G. Webb*	2,879		

[All of Birmingham.]

BODMIN.—For erection of a block of eighteen workmen's dwellings, for the Urban District Council. Mr. R. T. Buscombe, Borough Surveyor:—

Crockerell	£3,450	0	0
Pethick Bros.	3,444	0	0
Harris	3,085	13	6
Ham Bros.	2,880	0	0
Buscombe & Sons	2,646	0	0
Hobbs	£2,599	0	0
Brown & Son	2,597	0	0
Trehane	2,475	0	0
Bennett, Cawsand, Plymouth*	2,370	0	0

BOWDON (Cheshire).—For alterations and additions to Bowdon Parish Church Schools, for the Rev. Archdeacon Gore, D.D., and School Managers. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester. Quantities by Mr. L. Knowles, 37, Blackfriars-street, Manchester:—

W. Ormson	£1,437		
Peace & Yorquoy	1,420		
J. F. Moore	1,420		
J. Pennington	1,370		
Hamilton & Sons	£1,350		
Burgess & Galt	1,320		
G. Macfarlane & Son, Manchester*	1,307		

BUSHEY.—For pulling down and rebuilding new premises, London-road, Bushey, Herts, for the London and South-Western Bank, Ltd. Mr. C. L. Morgan, architect, 43, Cannon-street, London, E.C.:—

S. W. Moscript	£2 876		
Tennant & Co.	2,781		
H. R. Oldley & Sons	2,667		
G. & J. Waterman	£2,564		
Godson & Sons	2,555		
C. Brightman, Watford*	2,525		

CAVERSHAM.—For laying 802 yds. of 12-in. cast-iron effluent drain for sewage works, for the Urban District Council. Mr. A. J. Smith, Surveyor, Council Offices, Caversham:—

R. Tabor	£1,319	0	0
J. L. Foster	1,202	14	0
H. W. Godwin	1,228	15	8
Hewitt & Sons	1,113	9	10
G. Long	1,108	18	4
A. Lee	1,101	12	0
F. Talbot	1,081	17	0
Margrett & Alsebrook	1,046	8	6
T. Free & Sons	1,043	7	6
Rowell & Sons	1,043	3	6
Smith & Co.	997	1	6
Construction & Trading Co.	990	0	0
Biggs, Wall, & Co.	£988	14	0
Davis, Ball, & Co.	986	16	0
A. T. Catley	986	8	0
Collier & Catley	928	11	0
T. Turner	921	16	8
W. Reeves	917	7	0
G. G. Rayner	910	13	1
W. T. Toogood & Co.	903	2	0
J. H. McDonald, Cowley Sewage Works, Oxford*	877	9	0
A. G. Ossenton	841	15	0

COLCHESTER.—For the erection of a school at Myland, for the Education Committee. Mr. C. E. Butcher, architect, 3, Queen-street, Colchester. Quantities by architect:—

J. Manders	£5,486	10	4
R. Beaumont	4,928	0	0
H. W. Gladwell	4,900	10	0
Everett & Son	4,887	0	0
Oak Building Co.	4,850	0	0
Grimwood & Sons	4,785	0	0
Dobson & Son	£4,629	0	0
C. Roper	4,557	0	0
T. J. Ward	4,539	0	0
J. McKay	4,500	0	0
A. Suckling & Co.	4,475	0	0
W. Chambers, Colchester*	4,298	0	0

EFAIL FACH (Wales).—For repairs and alterations of Sardis Congregational Chapel, for the committee. Mr. D. Evans, architect, Ynys-street, Port Talbot:—

J. O'Brien	£215 0 0
S. Picton & Co., Pontrieydyfen*	190 0 0
B. Cockwell	170 0 0

FAIRFIELD (near Manchester).—For the erection of ten dwellings in Stanley-street, off Ashton Hill-lane, Fairfield, for Mr. J. Pollitt, Stanley House, Fairfield. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester:—

H. Fielding	£2,500		
E. Jackson	2,450		
W. Q. Smith & Co.	£2,275		
J. Harrop, Abbey Hey-lane, Gorton*	2,070		

FOLKESTONE.—For constructing an underground convenience opposite Town Hall, Folkestone, for the Corporation. Mr. A. E. Nichols, A.M.Inst.C.E., Borough Engineer and Surveyor, Folkestone. Quantities by Borough Engineer:—

O. Marx, 3, Burrow-road, Folkestone* £165

FOLKESTONE.—For the alterations of Pelham House, Bouverie-road, East, into a county school for girls, for the Education Committee of the Kent County Council. Mr. W. H. Robinson, Surveyor to the Committee:—

F. W. & J. Clark	£1,579	0	
T. Nicholls	1,526	0	
A. J. Camburn	1,520	0	
T. E. Croswell	1,476	0	
Newton White	1,390	0	
Hayward & Paramor	1,345	0	
R. Webster	£1,339	0	
S. Vant	1,325	0	
J. G. Parsons	1,300	0	
S. Binfield, Folkestone†	1,117	5	

[Surveyor's estimate, £1,121.]

LITTLEHAMPTON.—For paving works, for the Urban District Council. Mr. H. Howard, engineer, Littlehampton:—

E. G. Holland	£615	0	0
Grounds & Newton	607	15	3
Webb Marriott, 6, Harcombe-road, Stoke Newington, N.*	£531	13	5

LITTLEHAMPTON.—For supply and delivery of 200 tons of Guernsey granite, broken, for the Urban District Council. Mr. H. Howard, engineer, Littlehampton:—

	Per ton, delivered free. s. d.		Per ton, delivered free. s. d.
Pepper & Son	13 9	R. Manuell	11 7
J. Hall	13 3	J. Harvey, Littlehampton*	11 7
R. Field	13 3	Fry Bros.	11 3
J. Mowlem	13 0		
Griffiths & Co.	11 10		

LONDON.—For contemplated conversion of No. 44, Castlestown-road, West Kensington, into residential flats, for the Trustees. Messrs. Hayward & Maynard, architects, 30, John-street, Adelphi, W.C.:—

H. H. Perkins & Co.	£1,238		
Whitby Bros.	1,050		
H. Hocking	£1,050		

LONDON.—For necessary work of fitting up the shops to be formed at Nos. 56 and 58, Strand, for the London County Council:—

	No. 56, Strand.	No. 58, Strand.
Sage & Co., London*	£296	£367
Spreckly & Co.	287	434
Drew & Co.	312	419
Jenrick & Crocker	284	467
Curtis & Sons	350	460

LONDON.—For kerbing, channelling, and making-up the roadways of Stainton-road and Highclere-street, for Lewisham Borough Council. Mr. E. Van Putten, C.E., Surveyor, Town Hall, Lewisham:—

	Stainton-road.			Highclere-street.		
Fry Bros.	£2,193	0	0*	£1,073	0	
S. T. Stevens	2,200	0	0	—		
H. Woodham & Sons	2,489	0	0	997	0	
B. Martin	2,300	7	6	1,046	17	
W. Pearce	2,622	0	0	996	0*	
J. Mowlem & Co.	2,940	0	0	1,068	0	
W. Moon	3,602	0	0	1,750	0	

For paving the footways of same with artificial stone:—

	Stainton-road.			Highclere-street.		
Atlas Stone Co., Ltd.*	£480	0	0	£260	0	0
Excelsior Patent Stone Co.	485	18	6	287	19	9
Imperial Stone Co., Ltd.	499	0	0	265	0	0
W. Pearce	527	0	0	277	0	0
J. Ellis & Sons, Ltd.	533	2	6	300	9	6
Shap Granite & Patent Concrete Co., Ltd.	533	2	6	300	9	6
F. Hoffmann	547	10	6	301	11	0
Patent Victoria Stone Co., Ltd.	561	5	0	308	15	0
Empire Stone Co.	564	19	6	294	18	0
Adamant Stone & Paving Co., Ltd.	632	0	0	320	0	0
John Mowlem & Co., Ltd.	636	0	0	335	0	0

LONDON.—For 150 additional cars, for the London County Council Tramways:—

	Price per car.		Total price (150 cars).
St. Louis Car Co.	£505	0	£75,750
Metropolitan Amalgamated Railway Carriage and Wagon Co., Ltd.	502	10	75,375
United Electric Car Co., Ltd.	499	0	74,850
Brush Electrical Engineering Co., Ltd.	494	10	74,175
Hurst, Nelson, & Co., Ltd., Motherwell*	423	10	63,525
Hungarian Railway Carriage & Machine Works, Ltd.	388	0	58,200

The lowest tenderers, the Hungarian Railway Carriage and Machine Works, did not comply with the Council's specification for the work, and further, were not prepared to accept the Council's conditions of labour. In these circumstances, therefore, the next lowest tender, namely, that of Messrs. Hurst, Nelson, & Co., Ltd., amounting to 63,525*l.*, was accepted. The amount includes a sum of 1*l.* a car body in respect of a steel under-frame, and has been accepted upon condition that not less than 40 cars are delivered by January 15, 1906, a further 40 by February 15, a further 40 by March 15, and the balance on or before April 15, 1906.

LONDON.—For maximum traction bogie trucks required for 150 cars, for the London County Council:—

	Price per pair of trucks for one car.		Total price (150 cars).
Hungarian Railway Carriage & Machine Works, Ltd.	£92	0	£13 800
Brush Electrical Engineering Co., Ltd.	96 ‡116	0 0	14,400 17,400
United Electric Car Co., Ltd	99 ‡119	10 10	14,925 17,925
Hurst, Nelson, & Co., Ltd.	112	0	16 800
Mountain & Gibson, Ltd., Bury*	120 ‡122 ‡125 ‡131	0 0 0 0	18,000 18,250 18,750 19,650
Peckham Manufacturing Co., U.S.A.	140	0	21,000
H. T. Bradford	160	0	24,000

[‡ Alternative Tenders.]

LONDON.—For electrical equipment and assembly of cars, for the London County Council:—

	Price per Equipment for One Car.	Price per Erection of one Car.	Total Price (150 Cars.)
	£ s. d.	£ s.	£
British Westinghouse Electric and Manufacturing Co., Ltd., London*	283 13 4	8 0	43,300
British Thomson Houston Co., Ltd.	293 13 4	9 10	45,475
Dick, Kerr, & Co., Ltd.	293 13 4	10 0	45,550
Brush Electrical Engineering Co., Ltd.	353 13 4	20 0	56,050

LONDON.—For laying of cable ducts in connexion with new electric tramways, for the London County Council:—

Cunningham, Forbes, & Co.	£69.712 15 6
J. F. Cummings & Co.	42,812 17 8
S. Kavanagh & Co.	41,267 2 3
J. Mowlem & Co., Ltd.	40 330 0 0
British Insulated and Helsby Cables, Ltd.	39,000 5 6
J. A. Ewart	34,276 12 7
Westminster Construction Co., Ltd.	33 282 12 4
Muirhead, Greig, & Matthews	32,307 15 6
Reid Bros., London*	31,132 6 3

LONDON.—For first section of block of buildings, 103, Cheapside, E.C. Mr. A. E. Kingwell, architect, 103 and 104, Cheapside, E.C.:—

Tout	£4,520	Sims & Co.	£3,950
Mansfield & Sons	4,449	J. C. Richards & Co.	3,925
Fairhead & Sons	4,236	Patman & Fotheringham*	3 783
W. J. Renshaw	4,193	Lole & Co.	3,765
W. Rowe & Co.	4,127	Minter	3,760
Grover & Sons	4,036	Waring White Building Co.	3,749
Hunt & Sons	3,992		
Bywater & Sons	3,964		

[Architect's estimate, £4,000.]

BRIGHTON.—For supply of dressed granite kerb and channel, for the Town Council:—

—	—	12-in. by 6-in. Flat Kerb at per ft. run.	10-in. by 6-in. Edge Kerb at per ft. run.	12-in. by 6-in. Flat Channel at per ft. run.
		s. d.	s. d.	s. d.
Bichfeldt & Co., London*	Norway	0 11	0 10½	0 10½
A. & F. Manuelle	,,	0 11½	0 10½	0 10½
E. J. Van Praagh & Co.	,,	0 11½	0 10½	0 11
J. Goodchild & Co.	,,	0 11½	0 11	0 11½
Brookes, Ltd.	,,	1 0	0 11½	0 11½
J. R. White & Co.	,,	1 0½	0 11½	0 11½
W. Hosken & Co.	Cornish	1 3	1 3	1 1
G. Watson & Co.	Irish	1 1	0 10½	1 0

LONDON.—For the erection of new administrative block (superstructure), Homerton, N.E., for the Hackney Union Board of Guardians. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C. Quantities by Mr. G. T. C. Wright, 3, Great Winchester-street, E.C.:—

Coulson & Loft ..	£39,510	Peiblick Bros.	£34,444
Perry & Co.	36,500	Shurmur & Sons	34,443
McCormick & Sons	36,285	C. Wall	34,300
Lawrence & Sons	35,926	W. Lawrence & Sons	33,894
J. F. Holliday	35,789	Kirk & Randall ..	33,884
Wilkinson Bros...	35,779	H. & R. Roberts .	33,699
Leslie & Co.	35,567	A. Faulks	33,396
Stapleton & Sons	35,526	Johnson & Co. ..	33 340
F. & T. Thorn ..	35,300	Pattinson	33,243
Thomas & Edge ..	35,280	Davey	32,587
Nightingale	34,990	Kilby & Gayford	32,331
J. & M. Patrick ..	34,839	Kerridge & Shaw	31,972
H. Wilcock & Co.	34,775	Wallis & Co.	31,948
Patman & Fotheringham	34,700	A. Monk, Lower Edmonton, N.†	31,700
Shelbourne & Co.	34,540		
Lovatt, Ltd.	34,500		

[Architect's estimate, £34,000.]

LUDDENDEN FOOT.—For reconstruction of 1,515 super. yds. of paving upon a concrete foundation, certain portions of main road, for the Urban District Council. Mr. J. Stockwell Bottomley, Council's Surveyor, Luddenden Foot. Quantities by Surveyor:—

J. Brunton	£1,258 14 0	H. Burnham ..	£430 16 0
T. Coates ..	560 4 0	Bellfield & Barnes	410 19 10
A. Walker & Sons	515 4 0	T. Wild, Luddenden Foot*	405 0 0
Riley Bros. & Hartley	445 3 8		

[Surveyor's estimate, £428 6s. 8d.]

MESSINGHAM.—For erecting an elementary school at Messingham, near Kirton-in-Lindsey, for Lindsey County Council Education Committee. Messrs. Scorer & Gamble, architects, Bank Street-chambers, Lincoln:—

H. J. Thompson	£2,795 0	W. Moss & Sons, Ltd.	£2,574 0
W. Pallister ..	2,675 0	J. R. Manders	2,460 0
Kettering Co-operative Builders, Ltd.	2,663 15	S. R. & T. Kelsey	2,377 0
C. Sprakes & Sons	2,625 0	C. M. Greenwood	2,340 0
J. Guttridge ..	2,593 0	W. B. Loughton	2,212 5
		F. Scarborough, Lincoln*	2,199 9

PENZANCE.—For alterations at Polmennor Quarry. Mr. F. Latham, Borough Engineer, Public-buildings, Penzance:—

Tomlin & Triggs Bros. £100 14

RAMSGATE.—For 3,000 ft. of 12-in. by 6-in. granite channel, for the Corporation. Mr. T. G. Taylor, Borough Engineer, Albion House, Ramsgate:—

	per ft. s. d.
P. Falla	1 4
Macleod & Co.	1 3
J. Brunton	1 2
Carlingnose Granite Co.	1 0½
L. Sommerfeld	1 0
Burgess Burgess & Co.	0 11½
J. Goodchild & Co.	0 10½
Bichfeldt & Co.	0 10½
E. J. Van Praagh & Co.	0 10½
J. R. White & Co.	0 10½
A. & F. Manuelle, London*	0 10½

SEVENOAKS.—For removal and building steel girder bridge over river Eden, for the Rural District Council. Mr. W. H. Bolt, Surveyor to the Council, Edenbridge:—

H. Y. Smith & Son ..	£160	F. Pluck, Tonbridge*	£124
Stone, Farley, & Co.	137		

SOUTHAMPTON.—For Bitterne Park Congregational Church, Cobden-avenue, Bitterne-park, Southampton. Plans and quantities prepared by Mr. J. H. Blizard, F.S.I. (Lemon & Blizard), of Southampton, (architect to the trustees):—

H. Stevens & Co.	£2,838 0 0	Exors. of the late W. Franklin	£2,538 0 0
A. Bailey	2,698 9 7	J. Nichol	2,422 0 0
H. Cawte	2,687 0 0	Dyer & Sons ..	2,390 0 0
Jenkins & Sons, Ltd.	2,570 0 0	W. Jupe*	2,386 0 0
		H. Lawrence‡ .	2,175 0 0

[Architect's protecting estimate, £2,300.]
‡ Withdrawn.

ULVERSTON.—For widening the highway between the villages of Near and Far Sawrey, on the ferry to Hawkeshead-road, for the Rural District Council. Mr. W. F. Y. Molineux, Surveyor, Town Hall, Ulverston:—

G. Wilson, Rydal-road, Ambleside £232 14 1

WANSTEAD.—For the erection of three villa residences at Wanstead, N.E. Mr. H. Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

Clemens Bros.* £1,940

WATFORD.—For Cassiobridge sewerage and engine house extension, for Watford Urban District Council. Mr. D. Waterhouse, Surveyor, 14, High-street, Watford:—

A. E. Riley ..	£692 13 3	J. Jackson	£549 16 2
Stone, Farley, & Co.	619 11 0	Smith & Co. ..	443 7 1
H. Brown	585 14 0	G. Wiggs	439 0 0
Bateman	563 18 7	Clifford & Gough	439 0 0
A. E. Nunn ..	561 3 3		

WATFORD.—For sewerage, Rickmansworth-road, etc., for Watford Urban District Council. Mr. D. Waterhouse, Surveyor, 14, High-street, Watford:—

R. C. Brebner & Co.	£3,810 19 6	Free & Sons	£4,421 7 2
Long & Cook	3,320 0 0	Raynor	4,387 6 7
J. Riley	3,930 1½ 0	Stone, Farley, & Co.	4,283 0 0
Bateman	5,297 10 6	Reade & Sons	4,215 0 0
G. Wiggs	5,130 0 0	Hardy, Atkinson, & Co.	4,197 18 6
W. G. Wilmott	4,784 0 0	Davies, Ball, & Co.	4,031 15 3
J. Watson ..	4,650 0 0	J. Jackson ..	3,883 8 9
A. T. Catley	4,650 0 0	Smith & Co.	3,760 2 0
A. E. Nunn ..	4,198 18 0		
H. Brown ..	4,458 0 0		

WEALDSTONE.—For making-up and providing proper means for lighting Hamilton, Warrington, and Radnor-roads, for the Union District Council. Mr. H. Walker, Council's Engineer, Wealdstone. Quantities by Surveyor:—

C. W. Killingback & Co.	£2,770	J. & W. Drake	£2,595
J. Shelbourne & Co.	2,754	Free & Son	2,557
T. Adams	2,734	A. & B. Champness, Wealdstone*	2,546
W. & G. French ..	2,706	F. E. Barry	2,534
S. Gibbons	2,644	T. E. Starkey	2,439

WEYBRIDGE.—For supply of road materials, for the Urban District Council. Mr. John S. Crawshaw, Council's Surveyor, Weybridge:—

1½-*in. Quenast Granite.*

C. M. Manuelle, 120-123, Fenchurch-street, London, E.C. ..... 14s.

WIMBLEDON.—Completing Nos. 4 and 5, Parkside. Messrs. Homer & Lucas, architects, 35, Bucklersbury, E.C. Quantities by Mr. G. Silvester, 46, Strand, W.C.:—

Larke Bros.	£1,696
A. Hudson, Westminster*	1,435
Hammond	1,429

W. H. Lascelles & Co.

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 1365 London Wall.

HIGH-CLASS JOINERY, LASCELLES' CONCRETE.

Architects' Designs are carried out with the greatest care.

CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, and Shop Fittings.

CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

The BATH STONE FIRMS, Ltd., BATH.

For all the Proved Kinds of

BATH STONE.

FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE. DOULTING STONE.

The Ham Hill and Doulting Stone Co., Limited (Incorporating the Ham Hill Stone Co. and C. Trask and Sons, The Doulting Stone Co.).

Chief Office:—Norton, Stoke-under-Ham, Somerset.

London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

GREEK MARBLE.

White and Blue Pentelikon at Low Prices for BUILDING PURPOSES.

Beautiful Colours for Interior Decoration.

Full Particulars and Samples:—

MARMOR LIMITED,
18, Finsbury Square, E.C.

See Advt. p. xxi.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
PHOTOLITHOGRAPHERS,
4 & 5, East Harding-street,
Fetter-lane, E.C.

QUANTITIES, etc., LITHOGRAPHED accurately and with despatch. [Telephone No. 434 Westminster.
METCHIM & SON {6, PRINCES STREET, S.W., and 22, CLEMENT'S LANE, E.C.
"QUANTITY SURVEYORS' DIARY & TABLES," For 1905, price 6d., post 7d. In leather, 1/-, post 1/1.

PILKINGTON & CO

(ESTABLISHED 1838.)
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.
Telephone No., 6319 Avenue.

Registered Trade Mark.

Polonceau Asphalte.

PATENT ASPHALTE and FELT ROOFING.
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.
PYRIMONT SEYSSEL ASPHALTE.

DOVETAIL CORRUGATED SHEETING

(Fireproof, Solid Steel Sheet)

IS RECOMMENDED FOR FIXING TO OUTSIDE WALLS FOR HALF-TIMBERED WORK.

The Plaster can be Artistically Finished to Represent Masonry, &c.

PEBBLE DASH, ROUGH CAST, VERMICULATED, &c.

PARTICULARS FROM—

THE FIREPROOF COMPANY, LTD., 10, YORK BUILDINGS, ADELPHI.